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Form Miss de Kinnard
May 1872

PHYSICAL SURVEY OF VIRGINIA.

416330
HER GEOGRAPHICAL POSITION;

ITS

COMMERCIAL ADVANTAGES AND NATIONAL IMPORTANCE.

PRELIMINARY REPORT

BY

Matthew Fontaine
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GEN. FRANCIS H. SMITH, A. M., SUPERINTENDENT.

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PRELIMINARY REPORT.

No. 1.*

OFFICE OF PHYSICAL SURVEY, November, 1868.

GEN. F. H. SMITH,

Superintendent Virginia Military Institute, Lexington.

GENERAL :—In entering upon the duties of the office which has been assigned me in connection with the noble State Institution over which you preside, it has appeared most advisable, first to collect and embody in a series of Preliminary Reports, all existing information bearing upon the objects of the survey.

These objects briefly stated are, to develop the physical resources of the State, to make known its geography, and to point out the great commercial advantages which naturally arise from its situation with regard to the sea and the interior; to show the national importance of that situation and the benefits to arise from turning it to account; also, to collect from the people and embody in like manner all the information already possessed by them, as to the climate, soil, and productions of the State, its mineral resources, water-power and manufacturing facilities, to the end that industry may be stimulated, enterprise encouraged, the material prosperity of the people advanced, and the general welfare of the country promoted.

Considering the circumstances under which recent events have placed the people of Virginia, I have thought it best to address myself in this preliminary work, first to an economic study of the geographical position of the State, with the especial view of pointing

* Since the date of the previous report better sources of information have come within my reach. The materials derived therefrom are so important as to justify a recast, and the demand for copies so great as to call for a new edition.

31st March, 1869.

M. F. MAURY.

out the commercial advantages of that position, its bearing upon the common defence, and the national importance which it gives to its two grand lines of internal improvement which I shall point out, and which are designed to connect the Western States with its seaport towns.

These advantages are so pervading, that other States, with the nation at large, are as much interested in turning them to account as is Virginia herself.

Naturally and both in a geographical and military point of view, Norfolk with Hampton Roads at the mouth of the Chesapeake Bay as its lower harbor, and San Francisco inside of the Golden Gate in California, occupy—one on the Pacific, the other on the Atlantic—the most important maritime positions that lie within the domains of the United States. They curtain the entire ocean front of the country East and West.

Each holds the commanding point on its own side ; each has the finest harbor on its coast ; and each, with the most convenient ingress and egress for ships, is as safe from wind and wave as shelter can make them. Nor is access to either ever interrupted by the frosts of winter. In the harbors of each, there is water and room to berth not only all the ships of commerce, but the navies of the world also.

Government, appreciating the importance of these two havens of the sea in their military aspects, has designated them as the principal naval station on each coast, and has encouraged with marked liberality the construction of a system of internal improvements designed to connect the port of California with the interior for the distance of more than a thousand miles by rail.

But so far, Congress has done nothing for bringing that interior into connection with the port of Virginia, notwithstanding the bearings of such controlling geographical and commercial facts as these, viz. :

1st. The great commercial marts of the world lie on the shores, not of the Pacific but of the Atlantic Ocean, and by reason of its river system the whole country on this side of the Rocky Mountains is naturally tributary to the Atlantic.

2d. The commercial tendency of the agricultural produce of the Mississippi valley is to seek outlets, not to the West, but to the East.

The last-named fact has impressed itself upon the internal improvements of the country, and so influenced them in their line of

direction that now not one tithe of the produce of that valley seeks an outlet by river to the south into the Gulf of Mexico, but by rail and water eastwardly into the Atlantic.

And as the inland States of the Mississippi valley have extended their improvements eastward, so as to reach the Atlantic seaboard, so have their commercial cities flourished and the people prospered. In illustration; compare Ohio and Cincinnati, Illinois and Chicago, with Kentucky and Louisville. There is not a single railway that crosses the eastern borders of Kentucky; the consequence is, there is no State east of the Mississippi that is commercially so far removed from the Atlantic seaboard and from the highways of commerce as is Kentucky. And through lack of shorter and cheaper routes to the sea, commerce in all the inland States of the Mississippi valley languishes.

For the year ending 30th June, 1867, the total specie value of the domestic exports of the country amounted (in round numbers) to \$334,400,000;* of this sum, \$317,000,000 went to countries bordering on the Atlantic. The countries which took the remaining \$17,000,000, or 5 per cent., are, it is true, washed by the waters of the Pacific; yet the voyage outward and homeward to the best customers among them is on account of the winds and currents farther from the Golden Gate of California than from the Capes of Virginia. This shows the importance of a great national highway from these States to the Chesapeake Bay, their nearest and best haven of the sea.

THE ATLANTIC AND PACIFIC OCEANS IN THEIR COMMERCIAL ASPECTS.

These two oceans present in their physical features and geographical relations, contrasts as marked as is the difference in their commercial importance to us. The Atlantic is a long and narrow ocean—it is easily traversed. Modern improvements and discoveries in navigation have brought its most distant ports within two or three weeks' sail from the harbors of the Chesapeake.

The Pacific is as wide as the Atlantic is long. The round voyage, under canvas to India or Australia requires as much time for its accomplishment from the ports of California as it does from the shores of Virginia.

Therefore, to connect the port of California by a great national work with the Mississippi valley, and then to leave the harbors of

* Annual Report of the Bureau of Statistics, 1867.

the Chesapeake out, would be like forging the two ends of a chain and leaving out the connecting link in the middle. Thus unconnected, no cable can subserve half its purpose, nor can it, in times of storm and tempest, hold, for want of scope, the ship to her moorings.

That the Atlantic is the most commercial of the four great oceans, is owing to the same cause which makes the harbors of the Chesapeake so important by reason of their physical aspects, viz. : GEOGRAPHICAL POSITION. The greatest and the longest rivers of the earth empty into the Atlantic Ocean. All Europe is commercially tributary to it ; so also is the greater part of Africa, and through the Mediterranean, all of Algeria, Egypt, and Asia Minor. On its western shores, the whole of South America, except that narrow strip (about 120 miles in breadth) which lies between the Andes and the Pacific Ocean. All these countries must look to the Atlantic for an outlet to the markets of the world ; so must the whole of North America ever do that lies on this side of the Rocky Mountains. For this reason the *great* movements of produce are, in Europe, to the westward ; in America, to the eastward, *i. e.*, toward the Atlantic on both sides.

Those regions which nature has made tributary to the Atlantic are the regions over which the Christian nations of the world hold chief sway. They have the most wants, for they are most enlightened ; they are, therefore, the most commercial and mighty.

With them "COMMERCE is king ;" and nothing that man can remove is permitted to stand in its way. In obedience to its dictates the Government of the United States is, with a munificent hand, encouraging the construction of great trunk lines of railway from the Pacific Ocean to the navigable waters of the Mississippi valley. By an air-line, the terminus of these roads on the Mississippi is nearer to Norfolk than to New York ; that of the Northern by 100, and that of the Southern, opposite to Memphis, 177 miles.

WATER AFFORDS THE CHEAPEST TRANSPORTATION.

Of all modes of transportation, that by water is the cheapest, and were the two main lines which the natural features and position of Virginia so highly favor, completed, viz. : one from the Ohio river, the other from the Tennessee, and each leading to the waters of the Chesapeake, then the distance from the heart of the Mississippi valley, taken as at the mouth of the Ohio to the sea, will be, by the

James River and Kanawha Canal, 779 miles less than it now is by Northern lakes, and 1,670 miles less than it is, by Gulf and sea, to New York.

So circuitous, inconvenient, and expensive are existing routes by Lake and Gulf, that Western farmers are now compelled to pay 68* cents on every bushel of wheat that is sent as far as from Dubuque, Iowa, to New York.

Mr. Abert, of the U. S. Engineer Corps, in his official report on the navigation of the Illinois river and a ship canal thence to Lake Michigan, says that statistical reports of Lake Boards of Trade and the report of the Chicago Convention "show that present rates of freight through the Illinois and Michigan Canal, the Great Lakes and the New York canals, amount to a prohibition on corn grown one hundred miles west of Chicago!"† The natural facilities afforded by Virginia for a nearer way to the sea will, when they are properly taken advantage of, unlock all the country that is thus shut up.

With the Virginia water line completed, trans-Mississippi grown corn may be transported and put on board ship in Hampton Roads at less than half the cost that now attends its transportation alone to New York.

The people of the Great West are entitled to the cheapest highway to the sea that nature allows and that art can construct. For the want of such a way many of them have been, and are now paying more than one-half, and some of them as much as two-thirds the value of their produce to get it to the seaboard. Are they not entitled to a free right of way to its nearest and best havens? The sea is the common highway of nations, and all the peoples of Europe have free access to it.

For want of such a way through the Mississippi river the tranquillity of the country was once endangered, and to secure it the purchase of Louisiana was effected. Subsequent inventions and improvements have so changed the routes and increased the business of commerce that the Mississippi river no longer suffices for the West and its trade. The same necessity which dictated the purchase of Louisiana now demands the construction of these two great lines of improvement through Virginia. The purchase of Louisiana cost \$15,000,000, and the population of the whole country was then only six millions ; it is now near forty.

* Official Reports, United States Army.

† Gen. Willson's Survey Illinois River, 1867.

GEOGRAPHICAL POSITION AND INTERNAL IMPROVEMENTS OF THE STATE.

Virginia lies between the parallels of $36^{\circ} 30'$ and $39^{\circ} 40'$ of north latitude, and California is crossed by the same parallels.

The internal improvements of Virginia consist in railways and canals—of $1,371\frac{1}{2}$ miles of the former, and 276 miles of the latter.

About sixty million dollars—estimated—have been expended in the construction of these works, all of which, with the other principal lines that are in contemplation at present, are projected on the accompanying map of the State.

*Railroads of Virginia completed, with the Length of the Main Line; Cost of Construction and Equipment; Date of Charter, and the Counties through which they pass.**

No.	NAME OF ROAD AND COUNTIES, AND DATE OF CHARTER.	LENGTH.	COST.
1.	Alexandria, Loudoun and Hampshire, March 15, 1853, completed to Leesburg; passes through the counties of Alexandria, Fairfax, and Loudoun.....	Miles. 37.5	Dollars. 1,538,744
2.	Chesapeake and Ohio (Louisa road), February 18, 1836; Virginia Central, March 5, 1849; Chesapeake and Ohio, March 1, 1867, completed to Covington; passing through Henrico, Hanover, Louisa, Orange, Albemarle, Augusta, Rockbridge, Bath, and Alleghany....	204.9	6,090,140
3.	Clover Hill, February 5, 1841; from the Clover Hill coal pits to Osborne's, opposite Dutch Gap, on James River, in Chesterfield.....	21	310,000
4.	Norfolk and Petersburg, March 17, 1851; Norfolk, Nansemond, Isle of Wight, Surry, and Prince George, Orange, Alexandria, and Manassas; Orange and Alexandria, March 27, 1848; Orange, Alexandria, and Manassas, February 14, 1867; Fairfax, Culpepper, Orange, Prince William, Fauquier, Albemarle, Nelson, Amherst and Campbell, Warren and Shenandoah:	81	2,353,857
	To Lynchburg.....	148.3	7,182,012
	To Mount Jackson.....	77.7	3,322,165
6.	Petersburg, February 10, 1830; Dinwiddie, Sussex and Greensville:		
	To Weldon.....	61	
	To Gaston.....	18	1,411,762
7.	Piedmont, March 27, 1862; from the Dan River bridge, on the Richmond and Danville Railroad to the North Carolina line (extended to Greensborough, North Carolina,) Pittsylvania.....	6.3	177,354
8.	Richmond and Danville, March 9, 1847; Chesterfield, Powhatan, Amelia, Nottoway, Prince Edward, Charlotte, Halifax, and Pittsylvania.....	140.5	4,929,000
9.	Richmond, Fredericksburg, and Potomac, February 25, 1834; Henrico, Hanover, Caroline, Spotsylvania, and Stafford.....	75.5	2,297,932

* Prepared from statistics by Col. Thomas H. Ellis and from information furnished by Col. E. Fontaine, President Chesapeake and Ohio Railroad.

No.	NAME OF ROAD AND COUNTIES, AND DATE OF CHARTER.	COST.	LENGTH.
		Miles.	Dollars.
10.	Richmond and Petersburg, March 14, 1836; Chesterfield.....	22.2	1,011,754
11.	Richmond and York River, January 31, 1853; Henrico, New Kent, and King William.....	38.3	1,055,286
12.	Seaboard and Roanoke, Portsmouth and Roanoke, March 8, 1832; Seaboard and Roanoke, February 27, 1846; Norfolk, Nansemond and Southampton.....	80	1,797,787
13.	Southside, March 5, 1846; Prince George Dinwiddie, Lunenburg, Nottoway, Prince Edward, Appomattox, Campbell, and Amherst.....	123	3,673,635
14.	Virginia and Tennessee, March 24, 1848; Campbell, Bedford, Roanoke, Montgomery, Pulaski, Wythe, Smyth, and Washington.....	204.2	7,190,550
15.	Winchester and Potomac, April 8, 1831; Frederick, Clarke, and Jefferson.....	32	906,353
Total length in miles and cost		1,371.4	45,248,331

Thus it appears that the average cost of railways in Virginia is \$32,994 per mile; whereas the like cost in Maryland, Pennsylvania, New York, and the Middle States is about \$53,000,* and in England \$175,000.

This statement does not include the Alexandria and Washington Railroad, or the Roanoke Valley Railroad, neither of which is at present in operation. The latter cost \$482,612. Nor does it include the North-Western and other railways in West Virginia built before the war. The cost of reconstruction since the close of the war is also included in the aggregate cost.

Projected Railroads, Approximate Length, and Authorized Capital. (See map.)

No.	APPROXIMATE LENGTH.	CAPITAL.
1.	Alexandria, Loudoun, and Hampshire; 95 miles, to be extended from Leesburg to the Potomac River at or near Paddytown...	\$1,800,000
2.	Chesapeake and Ohio; to be extended 225 miles from Covington to the mouth of the Big Sandy River. To be completed to the White Sulphur Springs by July, 1869.....	26,600,000
3.	Clinch Valley; 125 miles from a point on the Chesapeake and Ohio Railroad, near the mouth of the Greenbrier River, to a point on the Virginia and Kentucky Railroad, in Scott county.	2,000,000
4.	Coalfield and Tide-Water; 23 miles from Coalfield, in Chesterfield county, to Bermuda Hundreds, on James River.....	500,000
5.	Eastern Shore; 95 miles, from a point on the Virginia and Maryland boundary line, on the Eastern shore of Virginia, to some point on the Chesapeake Bay, in Northampton county.....	2,000,000

* H. V. Poor.

No.	APPROXIMATE LENGTH.	CAPITAL.
6.	Elizabeth River; 20 miles from Kane's Landing, on the Elizabeth River, to a point at or near Bunch Walnut's Landing, on the Northwest River, leading into Currituck Sound.	25,000
7.	Fredericksburg and Gordonsville, with authority to extend to Charlottesville; total 60 miles.	1,460,000
8.	Lynchburg and Danville; 55 miles.	2,500,000
9.	Norfolk and Great Western; 380 miles, from Norfolk via Danville, to some point on the Virginia and Tennessee Railroad, not east of Glade Springs.	10,000,000
10.	Orange, Alexandria, and Manassas; to be extended 20 miles (?) from Mount Jackson, in Shenandoah county, to Harrisonburg, in Rockingham county—now nearly completed—increased.	1,000,000
11.	Potomac; 45 miles from Fredericksburg to Alexandria.	2,000,000
12.	Potomac and Alexandria; 8 miles from a point on the Potomac River, opposite Georgetown, to Alexandria.	1,000,000
13.	Rappahannock and West Point; 15 miles from a point opposite West Point, on the Mattaponi River to the Rappahannock River.	1,000,000
14.	Roanoke Valley; 30 miles from Clarksville, in Mecklenburg county to the North Carolina line.	430,000
15.	Richmond and Lynchburg; 70 miles.	2,000,000
16.	Richmond and Newports News; 70 miles.	3,000,000
17.	Saltville and Coal Mine; 60 miles from Saltville, in Washington county, through the counties of Russell and Wise, to some suitable point on the Kentucky line.	1,000,000
18.	Shenandoah Valley 160 miles; from Harper's Ferry to Salem, with several branches*.	4,000,000
19.	Valley; from Harrisonburg to Salem 111 miles.	3,000,000
20.	Virginia and Cumberland Gap; 100 miles from Cumberland Gap by way of Saltville and the Plaster Banks to a point on the Virginia and Tennessee Railroad.	2,000,000
21.	Virginia and Kentucky; 80 miles from Cumberland Gap to Abingdon or Bristol, with a branch of such length as may be necessary to bring out coal from the counties of Wise, Buchanan, and Russell.	4,000,000
22.	Washington and Laurel; probable length not ascertained† from Abingdon or Glade Spring, on the Virginia and Tennessee Railroad, to a point on the Tennessee line, on the Laurel Mountain.	5,000,000
23.	Winchester and Strasburg; 18 miles.	600,000
24.	Wytheville and North Carolina; 65 miles, passing through Carroll county to the Virginia State line.	1,500,000
	Total authorized capital.	78,415,000

CANALS.

1. Albemarle and Chesapeake, connecting the Chesapeake Bay with Currituck, Albemarle and Pamlico Sounds, and their tributary streams. Length of canal in Virginia, $8\frac{1}{2}$ miles; length in North Carolina, $5\frac{1}{2}$ miles: total length of canal and river navigation 70 miles, with only one lock—220 feet long by 40 wide.

* This road is not projected on the map. Its route is nearly the same as the Valley Road.

† Not on the map.

2. Alexandria Canal, 9 miles.

3. Dismal Swamp, $28\frac{1}{2}$ miles.

4. Kempsville, 9 miles.

5. James River and Kanawha, from tide-water at Richmond to the town of Buchanan, 198 miles, with branches from Columbia to Stillman's Mill, on the Rivanna river, 5 miles ; and from Point Cabell to Lexington, on the North River, 18 miles ; total cost of construction of this canal and its connections \$10,436,869.

In addition to these artificial lines the navigation of several of the rivers of the State, to wit : the Rappahannock, Rivanna, Roanoke, Slate, Upper Appomattox, Willis' and others, has been improved by means of locks and dams, at a considerable expense—not to speak of similar improvements in West Virginia, on the Coal, Guyandotte, Great Kanawha, Little Kanawha, and Monongahela.

These lines are, as a glance at the map will make obvious, well put in. They connect important points, and are for the most part intended to bring isolated regions in our own and the neighboring States, into commercial connection with the tide-water ports of Virginia, and give them practically, all the advantages for trade and traffic to which their geographical and natural position entitles them.

THE NORFOLK AND GREAT WESTERN RAILROAD.

This line is intended to intersect the Virginia and Tennessee Road near Bristol, and to shorten the distance thence to Norfolk some fifty miles. This road will make tributary to it a large and fertile region in Virginia and North Carolina that is now untapped, and which abounds in the most useful minerals, water-power, and manufacturing facilities. Its agricultural resources also are great. The soil and climates which produce the finest tobacco that is grown in the State lie along the route of this road. The lands here are very fertile, and yield annually to Ceres the most abundant harvests.

THE LYNCHBURG AND DANVILLE RAILROAD.

This work is intended to cross obliquely the same belt of country, and to intercept at Lynchburg the great lines of internal improvement which are intended to connect the "heart of the Great West" with the

tide-water harbors of the Chesapeake. Lynchburg is extensively engaged in the manufacture of tobacco, and this road will largely increase the supplies for her factories. The tobacco put up there is said to derive peculiar virtues from the salubrity of the air alone—owing probably to the low dew point and less humid state of its atmosphere when compared to that of the tide-water country.

THE VIRGINIA AND KENTUCKY RAILROAD.

This road may be considered as a continuance of the Norfolk and Great Western, and is intended to pass the Cumberland Gap with easy grades, and to unite with the Louisville, Harrodsburg, and Virginia road; thus bringing Louisville 300 miles nearer to the sea—through the Chesapeake Bay—than she is now by rail through the narrows of Sandy Hook. It runs through the extreme south-west corner of the State, and is calculated to benefit Kentucky even more than Virginia; yet Virginia, before the war, offered to pay out of her own treasury, \$1,500,000 toward its construction, provided Kentucky would lead it on through her borders to the banks of the Ohio and Mississippi rivers. Work had already been commenced upon it when the war broke out. The State has now no Legislature, and is without a voice, and, therefore, has no means of making good any of her pledges, or of redeeming any of her promises made in times gone by.

THE LOUDOUN AND HAMPSHIRE ROAD.

This railway was found by the war in its present uncompleted state—as was also the “Roanake Valley Road.” The work upon both was suspended by the war; the latter is not now in use.* The former is in operation, and the work of completion is about being resumed.

THE VALLEY RAILROAD

Runs longitudinally through that famous “calcareous valley” which Volney thought the “garden spot” of America, and called the granary of the country.† This part of the State is exceedingly fertile and abundant in resources. It is a fine grain and grass-growing

* Report of Board of Public Works, 1866.

† Volney's View, 1804.

country. It produces the finest of wheat, and preference is given to the flour from it for the United States Army over that of any other part of the Union. It is well watered, thickly inhabited, and profitably cultivated. Its mountain streams afford ample water-power for thousands of factories, and its hills are stored with marbles, iron, and other valuable minerals. The proposed route for this road, with its connections, will be at once appreciated by examining the map of the State.

THE TWO GREAT ROUTES.

These are the routes which are of such national importance. They are represented the one by the Chesapeake and Ohio Railroad and the James River and Kanawha Canal, as far as the Ohio ; the other by the James River Canal, as far as Lynchburg—and thence by the Virginia and Tennessee Railroad as far as Saltville, near Abingdon, Virginia ; and thence down the Holston River, one of the tributaries of the Tennessee, and so on down this river to its mouth by one fork, and by its other through the projected Coosa Canal into the Alabama River, and thence down that stream to the Gulf of Mexico. They are marked in blue and red on Map III.

The geographical position and physical relations of Virginia invest these routes with vast importance. They will bring in connection with the Chesapeake Bay, 16,000 miles of navigable rivers in the Mississippi valley, and 21,000 miles of railroad already in operation there, and make Hampton Roads the chief port to foreign markets for the mighty stream of commerce that is moved upon them.

It is necessary, therefore, to treat of these relations in several of their most important aspects, and to show at least some of the great interests of state to be advanced by the enlargement and completion of these works—for without them neither the vast physical resources of Virginia nor the real power and greatness of the country ever can be developed.

THE COOSA ROUTE.

The dangers of the Florida Pass, the foreign naval stations which overlook it, the want of good harbors on the coasts of Georgia and the Carolinas, make the gateway between the Capes of Virginia a "Golden Horn," and the harbors of the Chesapeake the best, most convenient, and most central seaports along the entire Atlantic coast for all, or portions of all, of the trans-Alleghany States south of

36° 30', as well as for large portions of Georgia and South Carolina, of the whole of North Carolina, Tennessee, Alabama, Mississippi, Louisiana and Arkansas, with large districts in Northern Texas and Southern Kentucky.

The route from the southern portion of this region, as an inspection of Map III. will make plain, lies along the Alabama River from its mouth up to the Coosa, then along the bed of that river up to a point within 25 or 30 miles of Gunter's Landing, on the Tennessee River. Across this narrow neck of land it is proposed to construct a ship canal to unite with the route from the mouth of the Tennessee River; and thence, partly by natural, partly by improved navigation, to Saltville, on the Holston, in Virginia; thence by double track freight railway, along the line of the Virginia and Tennessee road, to the James River and Kanawha Canal at Lynchburg, where this route falls in with the VIRGINIA WATER-LINE from the Ohio and Upper Mississippi. This is its present condition. There is along this route for a part of the way a single track railway already in operation through the entire length of the State. This road, under three several names, leads from Norfolk to Bristol, and extends through its connections (actual and projected) to the Ohio and Mississippi Rivers.

There is also steamboat navigation from the mouth of the Alabama up to Wetumpka. Here the ledge crops out which forms the Muscle Shoals of the Tennessee, and there is a portage; after this the Coosa again becomes navigable, and steamboats ply on it up to Rome, Ga.

A company in Alabama has been chartered to make this portage navigable for steamboats, which being accomplished, there will be steamboat navigation from the Gulf of Mexico up to within a short distance of the Tennessee River. The Coosa Canal will fill in this gap, and, without any other improvements except those which the General Government now has in hand, will give a direct line of inland navigation from the Gulf via Mobile through the Alabama into the Tennessee, and then into the Ohio on one hand, and as high up as the Boat-yard on the Holston on the other. I am not aware that any surveys have been made for a canal across this isthmus. But be its topography ever so difficult, the work is a *national necessity*, and therefore, sooner or later, it must be built. The practicability of all the other parts and links in this route has been determined by actual examination and survey.

A corps of United States Engineers is, at the national expense, now improving the navigation of the Tennessee River for steamers

of 750 tons, from its mouth to Chattanooga, at an estimated cost of \$4,050,940.95.*

The extension of these improvements thence to Saltville, in Virginia; the construction thence of a double track freighting-railway to the James River Canal at Lynchburg, are the improvements called for in this direction. They are required to furnish the majority of the people in the Gulf States with a cheaper and shorter route in peace than any they now have to the Atlantic seaboard, and with a safe one in war.

These links being complete, they will form a composite line of railway, river and canal of 875 miles between Hampton Roads and the great southern bend of the Tennessee River at Gunter's Landing, in Alabama, 699 of which will be by water.

The Virginia and Tennessee Railroad lies along this route, and though but a single track, it is already competing with the Gulf for the transportation of cotton from points as far distant as Memphis and Selma, delivering it in Norfolk as cheaply as by existing routes it is carried to New York.

What is thought of this Route and the Navigability of the Tennessee and its Tributaries by the Engineer Bureau of the Army.

The attention of the Government has been directed to the improvement of this river, from time to time during the last 40 years.

In 1832 Congress voted the State of Alabama 400,000 acres of public lands to improve the navigation of the Tennessee with a canal round the Muscle Shoals.

These lands proved insufficient, and we learn through the official reports of surveyors to the Engineer Bureau in Washington that these Shoals remain now as they were then—passable by steamers for only "three or four weeks in the year," and then exceedingly dangerous,† and this, notwithstanding that for 300 miles thence up to Knoxville there is water enough during 9 months annually for steamers drawing 3 feet.

"From Brown's ferry," say these Reports, "a majestic river,

* See Report on Examinations and Surveys of the Tennessee River made to General Weitzel, U. S. Engineer Corps, by William B. Gaw, Chief Assistant Engineer.

† Page 26 Gaw's Survey, see Ex. Doc. No. 271, Letter from the Secretary of War, transmitting Report of Surveys on the Tennessee River, made in compliance with the act of March 2, 1867.

broad, deep, and with gentle current at all times, is seen stretching for 100 miles above, through a valley abounding in the latent elements of prosperity ; a river which, in this distance, is seldom seen to bear on its bosom a *pellicle of ice*, and a country whose climate is so genial that wheat is ripe for harvest by the time the green blades in the North-western States emerge from the snow.

"Yet, with this favorable combination of natural resources, the valley languishes for want of a cheap transportation to market ; and this portion of the river, for purposes of constant and certain navigation, is as sealed as though the river had no outlet to the Mississippi valley."

Indeed steamers of that draft can now go for six months during the year as high up as Kingsport or the Boat-yard on the Holston, and this river is so gentle in its descents, so free of dangerous rapids, that the people of East Tennessee were formerly supplied with salt, brought down in flat-boats from the salt works of Abingdon, Virginia.

Nor is this all, for during "six months in the year," adds this Report, "boats of two feet draft can ascend above Knoxville 100 miles up the Little Tennessee ; 153 up the Clinch ; 75 miles up the Hiawassee ; 125 miles up the French Broad, and 50 miles up Powell's River."

In short, the engineer adds : "there are 925 miles of natural navigation above the Muscle Shoals, with only three weeks precarious outlet at Muscle Shoals to the Lower Tennessee and Mississippi valley, from a region whose drainage into the Tennessee embraces 15,000 square miles."

The navigation of these six tributaries can be easily improved, so as to make a total length of inland navigation above the Muscle Shoals of 1,300 miles.*

In the regions thus watered and drained, and shut up from the great commercial highways of the country, this Report on the Survey of the Tennessee River goes on to say that there "wheat matures six weeks earlier than in the North-western States, and brings the highest price in the New York market. While the North-western farmer has a rigorous winter to contend with, which compels him to house and feed his stock for six months in the year, stock can graze all winter in North Alabama, thus saving the farmer the labor of providing for it. The North-western farmer, moreover, has only six months in the year in which the weather will permit him to provide

* Page 27 Report of Gaw's Survey, 1867.

for his wants in the winter ; while there is hardly a day in the year when the North Alabama farmer cannot till his grounds.

"The advantages of this section of the country over the Northwest must have their weight ; and when it is more generally known that the climate invites the farmer here, which permits the Malaga grape, the fig, and pomegranate to flourish in the open air in the vicinity of Chattanooga and Huntsville—a climate which has neither the rigorous winters of the North, nor the feverish summers of the extreme South—immigration must be turned to the Tennessee valley. Its mild, uniform climate, fertile soil, pure air, and abundant water, its educational and social advantages, and a liberal policy to be pursued by large landholders, are points not to be disregarded by those seeking homes.

"The mineral wealth of the tributaries of the Tennessee River is no less than the agricultural resources of its valley. This region is fast becoming known to the people of the country as one of the richest sections in mineral deposits in the United States ; whilst its merits as an agricultural and stock-growing country are illustrated by the fact that from it both armies subsisted for nearly two years during the late war.

"The coal deposits of Hamilton and Roan counties, Tennessee, are enormous, and the coal is of excellent quality ; but that produced from the mines of Anderson county has been developed only recently, and is transported by rail to Memphis, Atlanta, Augusta, Macon, and other cities of the South, where it is pronounced equal to the best Pittsburg coal for all purposes.

"The opening of the river would develop the coal trade to an immense extent, by enabling it to be furnished to distant points at half its present price, and with it, would stimulate the manufacture and exportation of iron, zinc, and copper, of which vast quantities are found in this section of the State.

"Wheat could be transported to New Orleans for 20 cents per bushel and thence to New York, making 32 cents from the Tennessee valley to New York,* whilst freight from Dubuque, Iowa, by rail to New York is 68 cents, which the Western farmers are compelled now to pay.

"If eventually there should be a connection between the Tennessee and Coosa Rivers by canal, grain could be transported from the valley to Mobile for 12 cents per bushel, reducing the distance

* By opening the proposed route through Virginia, it could be delivered on board ship at Hampton Roads at 15 cents.

of water carriage 800 miles, and the freight to New York to 24 cents."

Gaw's report is made to General Weitzel, who is in charge of the Tennessee improvements, and in his communication forwarding it to the proper Bureau in Washington for transmission to Congress, the General endorses his subordinate and says :

"In addition to the many good reasons given in Gaw's report, for making the improvement at this time, and to those which have been given by the many able men who have reported on this subject during the last 40 years, there occurs to me, that not only would a work be done which should have been done years ago, but which would have repaid the Government a large interest, but that it would be the means of giving a poverty-stricken community an opportunity to recover from the disastrous effects of war, and give employment to a large class of deserving people who are said to be out of employment.

"I am perfectly confident that if the distinguished soldiers who commanded our armies operating along the line of this river during the late war, should be called upon to testify in this matter, that it would be found that enough money would have been saved to the quartermaster department by an improved river, in one campaign, to have trebled the expenses of doing the work."

There is bearing upon the subject in hand, other information contained in this interesting report which may be found in Ex. Doc. No. 271, 40th Congress, second session, April 3, 1868.

"Besides the above facts, appertaining strictly to the Tennessee River and its valley, there are others continental in their character, and deserve some consideration in connection with this general description of the Tennessee River.

"At Guntersville the distance between the Tennessee and Coosa Rivers at Gadsden is only 45 miles.

"As the obstructions of the islands below Gadsden, on the Coosa, will be surmounted in time, it becomes an interesting question as to whether a water connection by canal can be made between the Tennessee and Coosa Rivers at Guntersville and Gadsden, thus making a direct water communication from the Tennessee valley to the Gulf.

"These interest are not confined to the Tennessee valley, but may in time be made to affect the Gulf and Atlantic coasts, for the impetus which would be given to commerce and trade in the Tennessee valley by this improvement would demand the slack-water improvement of its tributaries, and then, in time, as the country became

fully developed, would lead to the consummation of a direct connection by water of the Tennessee valley and the waters of the Atlantic and Gulf.

"Such are the immediate and distant results, which must attend the removal of the obstructions at Muscle Shoals. But as it is, the Tennessee River for purposes of commerce is a great national artery severed at Muscle Shoals. To restore a healthy circulation to trade, and vitality to a great section of the United States, wasting away under influences that can be counteracted only by bringing it in contact with the moving commercial world, is within the easy accomplishment of the engineer, and needs only a careful study of the Tennessee River and the vast hydrographic system of which it is the trunk, to perceive the insignificance of the time and means required for this work, when compared to the gigantic results to be achieved." Pp. 27-8 *Gaw's Report*.

As a great national work, both commercial, political and defensive in its aspects, this fact seems not to have made a lodgment in the public mind, viz. : that if this great South-western route were completed on the scale and in the manner now suggested, there would meet at Gunter's Landing two inland and national water-lines, as useful in peace as in war—one from the Gulf of Mexico, via the Alabama and Coosa Rivers, through a steamboat canal of not over 30 miles long, to the Tennessee. The other through all the western tributaries of the Mississippi, above and below the mouth of the Ohio, thence up the Tennessee to the junction of the Coosa Canal, and so up the Tennessee to the Holston at Saltville, and thence by rail and water through Virginia to Hampton Roads.

This route being opened, both New Orleans and Mobile will have a shorter, a cheaper, and a better route to New York, via Norfolk, than they now have via the Gulf.

THE VIRGINIA WATER-LINE.

As between Sandy Hook and Hampton Roads, the natural position of the Chesapeake Bay makes this line—as an inspection of Map III. will also show—the nearest passway to the sea from all the States and Territories of the Upper Mississippi, west of Ohio and south of Montana. The completion of the James River Canal from Richmond to the Kanawha River, with a capacity as great as the drainage and feeders of the country will sustain, will make tributary to Virginia waters, the whole of the hydrographic basin of the Mis-

souri as far as the Rocky Mountains, and of the Upper Mississippi as far as the Falls of St. Anthony.

This line will open water communication from Fort Benton, 3,100 miles above the mouth of the Missouri, all the way to the mouth of the Chesapeake Bay. All this is river navigation except 400 miles of canal. It is marked on the map.

Thus our water-line and Coosa route show that the Chesapeake Bay is set midway the Atlantic coast, like a funnel in the ocean, through which these two lines of improvement will enable all this vast extent of country to pour its commerce, and reach the markets of Europe cheaper and more safely than it is possible to do by any other route.

The valley States that are chiefly interested in this route are West Virginia, Ohio, Kentucky, Indiana, Illinois, Wisconsin, Minnesota, Nebraska, Iowa, Missouri, Kansas, etc.

This line is partly constructed and in operation by rail and canal. The Chesapeake and Ohio Railroad is intended ultimately to reach the Ohio River; it is in operation with a single track from Richmond to Covington—205 miles. Thence a section of 20 miles in length is under contract to be finished next summer as far as the celebrated White Sulphur Springs, the fashionable watering-place for the South, and the most charming place of summer resort in the whole country.

This single track has to be extended 200 miles further, in order to reach the Ohio River. For the means required to do this, a loan of \$10,000,000 is now under negotiation, and the whole road from Richmond to the Ohio, with all its property and franchises, is pledged as a first mortgage to secure lenders.

This road runs through a country beautiful, fertile, and rich in coal and iron, salt and petroleum, and other valuable minerals. Though in operation but for half the distance, its receipts are already well-nigh sufficient to meet the interest on the proposed loan. The security, therefore, is rightly regarded as most ample, and the completion of one track of this long-coveted and much-needed improvement may be now confidently expected at an early day.

THE JAMES RIVER AND KANAWHA CANAL.

The James River and Kanawha Company, the commercial supplement of the Chesapeake and Ohio Railroad, was incorporated in March, 1832, and the canal was commenced in 1836. The water in

the former was to have been a prism 5 feet thick, 30 feet at the bottom, and 50 feet on top, with locks 100 by 15 feet in the clear.

This water-way has been dug also for nearly half the distance, viz : 197 miles, from Richmond to Buchanan, at the cost of \$10,-436,869, leaving 203 miles to be completed.

The Country that it will make Tributary to Norfolk is represented on Map III.

FORT BENTON.

Fort Benton is in Montana, at the foot of the Rocky Mountains and the head of navigation on the Missouri River. In the St. Louis papers of last spring no less than 60 steamboats were advertised for those regions. They brought back \$16,000,000 in gold. This line through Virginia being opened, Fort Benton will be by water 4,685 miles from the Chesapeake, but the freight for that distance by barge and water will not cost more than it now does by rail from Toledo to New York. The distance from Fort Benton, via Virginia water-line and Norfolk, to New York, will be less than it now is either by Lakes or Gulf.

From Fort Benton to the navigable waters of the Columbia, there is a portage of 160 miles. Having overcome this distance the voyager launches his bark upon the waters of the Columbia, whence after crossing two short portages—one of 5 and the other of 15 miles—and over which railways are already built—he sails out upon the broad Pacific Ocean.

In 1866 the Oregon Steam Navigation Company had 18 or 20 first-class steamers on this part of the water route to India, which during the four years ending with 1865 had transported up and down the Columbia 60,320 tons of freight, and nearly 100,000 passengers.

Montana is supplied with dry goods and merchandise partly through the Columbia and partly through the Missouri. It is within this Territory where the commerce of the East meets the commerce of the West, with only 20 miles of railway portage in all, as it ascends the Columbia River.*

A railway with its supplemental canal, if they be practicable,

* Report of Commissioner of General Land Office. Abridgment, 1867, p. 60.

across the portage between the head waters of these two majestic streams, would realize an idea that was advanced more than one hundred years ago by a gentleman of this State, and at a period when the Missouri River itself was almost a myth.

With a process of reasoning as bold, and an analysis as clear as that by which Dr. Galle was first induced to direct his telescope to the planet Neptune, this old physical geographer pointed out the drainage of these unexplored regions of the New World, and demonstrated, upon the principles of true philosophy, the existence of a portage between the waters that flow west into the Pacific Ocean, and those that flow east into the Mississippi River.

The First Idea of a Route across this Country to the Pacific.

The subjoined extract from a letter written more than one hundred years ago by the Rev. James Maury, of Louisa County, shows an early appreciation of the geographical advantages possessed by Virginia. It was addressed to his London correspondent, and treated of the geographical position of the Virginia plantations, and the seven years' war which was then raging between the French and English for colonial possessions, and which this sagacious writer regarded as a "controversy between two mighty monarchs for the empire of the world." The letter, after describing what we now call the "Great West," goes on to say:

"Though both (Evans' map and pamphlet) be liable to several exceptions, and I believe just ones, yet both are very useful in the main, and together give an attentive peruser a clear idea of the value of the now contested lands and waters to either of the two competitor princes, together with a proof amounting to more than probability, that he of the two who shall remain master of Ohio and the lakes at the end of the dispute, must, in the course of a few years, without an interposal of Providence to prevent it, become sole and absolute lord of North America; to which I will further add, as my own private opinion, that the same will one day or other render either Hudson's River at New York, or Potomac River in Virginia, the grand emporium of all East Indian commodities. Marvel not at this, however suprising it may seem; perhaps, before I have done with you, you will believe it to be not entirely chimera.

"When it is considered how far the eastern branches of that immense river (Mississippi) extend eastward, and how near they come to the navigable, or rather *canoeable* parts of the rivers which empty

themselves into the sea that washes our shores to the east, it seems highly probable that its western branches reach as far the other way, and make as near approaches to rivers emptying themselves into the Ocean to the west of us—the Pacific Ocean—across which a short and easy communication—short in comparison with the present route thither—opens itself to the navigator from that shore of the continent to the Eastern Indies. * * * *

* * * *

“One of the western branches (of the Mississippi), Cox tells us, he followed through its various meanders for seven hundred miles (which I believe is called Missouri by the natives, or Red River, from the color of its waters), and then received intelligence from the natives that its head springs interlocked in a neighboring mountain with the head springs of another river, to the westward of these same mountains, discharging itself into a large lake called Thoyago, which pours its waters through a large navigable river into a boundless sea, where, they told him, they had seen prodigious large canoes, with tree masts, and men almost as fair as himself. * *

“As there is such short and easy communication by means of canoe navigation and some short portages between stream and stream, from the Potomac, from Hudson’s River, in New York, and from the St. Lawrence to the Ohio—the two latter through the lakes—the former the best and shortest—as there also is good navigation, not only for canoes and bateaux, but for large flats, schooners, and sloops down the Ohio into the Mississippi, should Cox’s account be true of the communication of this last river with the South Sea, with only one portage, I leave you to judge of what vast importance such a discovery would be to Great Britain, as well as to her plantations, which, in that case, as I observed above, must become the general mart of the European world—at least for the rich and costly products of the East, and a mart at which chapmen might be furnished with all those commodities on much easier terms than the tedious and hazardous and expensive navigation to those countries can at present afford.

“This would supersede the necessity of going any more in quest of the north-east passage, which probably, if ever discovered, will also be productive of another discovery, that it lies in too inclement a latitude ever to be useful.

“The discovery of a communication through this part of the continent with the South Sea, would not only be a nursery for our seamen, but it would be instrumental in saving the lives of great numbers of them, under Heaven, the protectors of you and us; who,

poor fellows, drop off like rotten sheep by scorbutic disorders consequent upon such long voyages* as that to the East Indies.

"What an exhaustless fund of wealth would here be opened, superior to Potosi and all other South American mines! What an extent of region! What a ——! But no more. These are visionary excursions into futurity, with which I sometimes used to feast my imagination."† * * * * *

He tells further, that three years before, an expedition had been secretly organized in his neighborhood to go in search of "that river Missouri," and if they found it, they were to follow it up to its sources and ascertain if there were any such connection with the Pacific. A friend and neighbor of his had been appointed "the chief conductor of the whole affair, and was upon the point of departure when a sudden stop was put to the scheme by the breaking out of hostilities between this colony, the French and their Indians, which rendered the passage through the interjacent nations with whom they were tampering too hazardous to be attempted."‡

The requirements of commerce, the necessities of the country, and the interests of the North-west especially, have attained such proportions, that they now urgently require the enlargement and completion of this canal between the "canoeable" waters of the Mississippi River and the Chesapeake Bay; also the construction of a double line of rails across the mountains, from the present terminus of the canal to the head of navigation on the Kanawha River, to serve while the canal is in process of completion, for the temporary accommodation of the Western produce which otherwise must rot in the granaries, or be wasted there for want of the requisite facilities for getting it to market.

A glance at Map III. will of itself suggest the great national importance, both of this road and its accompanying canal, and of the railway line with its water-links from Norfolk via Petersburg, Lynchburg, and Bristol, thence to Kentucky, Tennessee, and the States of the Lower Mississippi valley.

* At that time they occupied more than a year.

† *Memoirs of a Huguenot Family*, by Anne Maury, New York, 1853; pp. 386-400.

‡ See letter dated Louisa Co., Va., Fredericksville Parish, 10th January, 1756, from the Rev. James Maury to his uncle in London, pp. 386-400 *Memoirs of a Huguenot Family*, translated and compiled from the original autobiography of the Rev. James Fontaine, by Anne Maury, New York, 1853.

Mr. Jefferson went to school to my grandfather, and it is not improbable that the expedition of Lewis and Clarke grew out of the doctrines that he then learned.—M.

The connections (as per map) of these two routes with the navigable waters and the lines of internal improvement in the South-west, the West, and North-west, show more palpably than words can tell how important and commanding to the whole country are the advantages afforded by the geographical position of Virginia for extending the commerce of the West and increasing the national prosperity.

With this map-picture before the eye of the political economist and the statesman, nothing can be said to make more clear the national importance of these two lines of improvement, or more striking the vast extent of back country that is naturally tributary to the tide-water harbors of Virginia.

The Mississippi valley is the largest river basin but one in the world. It is better populated than the Amazon, and, consequently, far more productive. The nearest and best way through the greater portion of it leads out to the sea between the Capes of the Chesapeake.

NATURAL POSITIONS OF NORFOLK AND NEW YORK.

Geographically considered, the harbors of Norfolk or Hampton Roads and New York occupy the most important and commanding position on the Atlantic coast of the United States. They are more convenient to the ocean than Baltimore, Philadelphia, and Boston are, because they are not so far from the sea.

Depth of water that can be carried out, and distance of the sea from

Hampton Roads,	distant 15 miles	depth	*30 feet.
New York,	" 30 "	3 $\frac{3}{4}$ fth.	23 "
Boston,	" 100 "	3 $\frac{1}{2}$ "	21 "
Philadelphia,	" 100 "	3 $\frac{3}{4}$ "	23 "
Baltimore,	" 160 "	2 $\frac{3}{4}$ "	16 "

Between the three last and the sea there is a tedious bay navigation, but each of the first two is situated upon a well-sheltered harbor that opens right out upon the sea with beautiful offings, those of Hampton Roads surpassing the others in all the requirements of navigation both as to facility of ingress and egress, certainty of land fall, depth of water, and holding ground.

* Draft for vessels of any size.

Commercially, also, these two harbors occupy the most choice positions with regard to the back country—positions which give them more natural advantages as the great outlet for our trade and commerce than those that are offered by any other of our seaport towns on the Atlantic ocean.

These advantages grow not only out of the conveniences they possess as havens of the sea, but also out of their geographical position upon its shores, their river systems and hydrographical connections, as well as their situation with regard to the back country that is naturally tributary to each.

New York has made the most of her geographical position and hydrographical relations, and, by availing herself of the advantages offered by them, has made herself, according to the prophecy of the old physical geographer of Louisa,† the commercial emporium of the New World. Her internal improvements have done this for her. But they no longer satisfy either the demands of the people, the wants of the West, or the requirements of commerce.

Norfolk, the superior of New York in all the natural advantages of back country, harbor, sea, and commercial situation, has slighted internal improvements, and now as an emporium of trade lags at an immeasurable distance behind New York.

The Chesapeake—Its Commercial and Hydrographic advantages.

The Chesapeake Bay is a "king's chamber" in the bosom of Virginia which no belligerent may enter with other than good intent. It affords the finest harbors on the coast, and, moreover, they are those farthest to the north on the Atlantic side of the continent that are never obstructed by ice. It is Virginia water, for it passes through her borders to the sea, and enters it between her own capes. Just between these capes, and under their shelter, lie Hampton Roads and Lynnhaven Bay—the "Spit Head" and the "Downs" of America.

To the south, all the seaport towns as far as the Reefs of Florida have their harbors obstructed by bars over which the larger vessels of commerce can never pass; and the extent of back country, naturally tributary to them, is, in comparison with that which is tributary to the seaport towns of Chesapeake Bay, very small. It does not extend beyond the drainage of these rivers.

The harbors that lie north of the Chesapeake are liable to ob-

† See Letter of Rev. James Maury, *Memoirs of a Huguenot Family*.

structions by ice every winter, and their approaches are often endangered by the fogs which prevail in their offings.

This noble sheet of water, with its spacious harbors, is large enough to accommodate shipping sufficient to afford transportation for all the products and merchandise of the West were they a thousand-fold more abundant than they are; and it is the most convenient point on the entire coast for distributing them north and south along the Atlantic seaboard, or for sending them to markets beyond the sea.

As for back country considered with regard to extent, fertility, and material resources, there is no sheet of water in the world that has such sources of commercial wealth tributary to it as these improvements will bring into connection with the Chesapeake Bay.

Back Country naturally Tributary to Norfolk and New York.

In order to show the back country to the North-west that is *naturally* tributary to Norfolk rather than to New York, and how it is *geographically* nearer to the former, the annexed map (III.) has been kindly prepared at my request by Lieutenant Waddell, under the superintendence of Colonel Williamson, Professor of Engineering, Virginia Military Institute.

Two points, each equidistant from New York and Norfolk, are taken—one on the sea-coast of the Atlantic, the other on the Pacific—and a line then drawn through them in such a manner that any point along it shall be equidistant between these two cities; all places to the north of it are, therefore, nearer to New York, and to the south of it, nearer to Norfolk.

It will thus be seen that Pittsburg and Wheeling, Columbus and Toledo, with the States of Indiana, Illinois, Iowa, and Nebraska, and all the country to the south of them, are *geographically* nearer to the Capes of Virginia than to Sandy Hook, and that by completing the James River Canal, all the country drained by the Missouri River would have an east and west water-line to the sea.

All this back country that lies west of the Alleghany Mountains and north of Tennessee is now, but by very devious and expensive routes, *commercially* tributary to New York, Philadelphia, or Baltimore, rather than to Norfolk. It has been made so by the railways and *canals* which these cities have constructed from their wharves to the great valley and mountain slopes of the West.

Similar works passing through Virginia into this magnificent back

country would have a like effect upon her seaport towns, increase the prosperity of the West, and greatly promote the general welfare.

The connection of the Chesapeake with this back country is an important subject, and one which bears directly upon the material prosperity of the State, and upon the general welfare; moreover, it is so allied to those vast physical and industrial resources which in this Survey we are seeking to develop, that it ought not in a report like this to be passed lightly over. It involves the whole question of internal improvement, State and National, at least so far as such works, whether lying wholly or only partly within the State, bear in their commercial and economical effects upon the welfare of a people or the development of their potential energies. It touches commercial interests in China and Japan, as well as in Great Britain, France, Holland, and Germany.

Norfolk, be it remembered, with its deep waters, spacious harbors, and free outlet between the Capes of Virginia to the sea, occupies geographically what the early discoverers thought would be, and what physical geography claims is, the most commanding commercial position along the whole Atlantic seaboard of the United States.

Why, then, may it be asked, have New York, Philadelphia, and Baltimore, each in a position less favored by nature, so far surpassed Norfolk in their commercial success? The answer is, because they at an early day built railways and canals to connect them with the West.

THE RAPID GROWTH OF THE WEST.

The rapid growth of the West in population, wealth, and power, is due, it is said, chiefly to those improvements—roundabout and circuitous in their course, and exacting in their tariffs, as they are. The more direct and cheaper routes through Virginia would vastly increase that wealth, prosperity, and power, for *through her borders lie the natural routes for the highways from the West to the sea, and in the Chesapeake Bay are situated the seaports of all the inland States.*

Fairly to show the advantages of these new routes, it is necessary to state the usual charges for transportation over existing lines, whether by rail or river, lake, sea, or canal.

FREIGHTS BY RAIL AND WATER.

By Sea.

These are ever varying, and it is only by taking the means of large aggregates that a general average can be established. To arrive at such an average, recourse has been had to a great many official documents and other sources of authentic information.*

These have been consulted for this and other statistical information, and by them it appears that freight beyond seas varies according to the length of the voyage, the dangers of navigation, and the activity of competition. In voyages beyond the capes—as to India, China, Australia, California, &c.—the usual freight hardly averages 1 mill per ton per mile. On voyages across the Atlantic, as from New York to England, it is averaging $1\frac{1}{2}$ to 2 mills per ton per mile :— Say in the Transatlantic carrying trade, in which all flags compete, the average is $1\frac{1}{2}$ mill per ton per mile. But in the coasting trade, in which there is no foreign competition, and where navigation is more dangerous, rates are more variable, and averages are much higher. The rates coastwise for two years, between forty ports varying in their distance apart from 100 to 1,200 miles, give 4.8 mills per ton per mile as the average for the coasting trade.

* Such as, "Special Report on Coal," made in 1865 through the State Engineer to the Senate of New York by S. H. Sweet, Deputy Engineer.

"Annual Statement of the Trade and Commerce of Chicago," by the Board of Trade.

"The Central Water Line from the Ohio River to the Virginia Capes," by the President and Engineer of the James River and Kanawha Canal Company."

"Annual Report of Chamber of Commerce of New York."

Ditto, "Auditor of the Canal Department, on the Tolls, Trade, and Tonnage of New York, 1867."

"Auditor-General's Reports upon Railways and Canals of Pennsylvania, 1867." Ditto, "Ohio."

"Commerce and Navigation of the United States" Bureau of Statistics.

"Agricultural Report, 1868," by United States Commissioner of Agriculture.

"Maury's Sailing Directions."

"Annual Report of the Philadelphia Board of Trade for 1868," by A. J. Perkins. The Annual Reports of the several Railway Companies of Virginia and other States, &c., &c.

Memorial to Congress on the Fox and Wisconsin Rivers, by the Prairie du Chien Convention, November, 1868.

Reports of General Weitzel, U. S. A., on the Improvement of the Tennessee River; General Wilson, on the Illinois River; General Warren, on the Upper Mississippi; &c., &c., &c.

By River.

Some authorities are quoting barge freights from St. Louis to New Orleans—a distance of 1,250 miles—as low as 10 cents the bushel on grain. This gives that mode of transportation a ton mileage of $2\frac{3}{4}$ mills. But as the opening of these routes through Virginia would bring in as feeders such a vast extent of river navigation, and that I may not overestimate in their favor, the average rate of barge transportation in these Western rivers is assumed to be 4 mills the ton the mile.

But the increase of business, followed by the life and competition which would surely attend the completion of these Virginia routes, would bring down these river freights as those on the Erie Canal and other great thoroughfares have been reduced.

There is another reason to prove that wholesome competition will bring barge freights on the Western waters down to a smaller figure than that herein allowed, viz. : 4 mills per ton per mile. Freights on the great lakes vary from 1 mill and four-tenths of a mill per ton per mile, to $6\frac{1}{2}$ mills ; but the rates for the last six years gives 3 as the ton mile average. Moreover, the lake vessels have, by reason of the storms and seas to which they are exposed, to be much more stoutly and expensively built than river craft ; also, they have but seven months for their year's work. Surely, then, 4 mills per ton per mile for freight in river barges is, as it is intended to be, an overestimate.

The opening of the Virginia routes will give a life and activity to the business of fetching and carrying on the Western rivers that have never before been witnessed there ; and it is quite within the bounds of probability to anticipate an average charge for river freights there ultimately of not more than 2 mills per ton per mile. As business has increased, a greater reduction even than this has taken place on both the freights and tolls of the Erie Canal.

Between 1830 and 1861 the tolls there were reduced from \$10 22 to \$1.40 the ton ; but in the ten years beginning with 1857, the average for both State tolls and carriers' charges was 11 mills. They are now 9.6 mills, of which 5 mills may be set down as carriers' charges.

At present the steamboats are charging from 40 to 60 cents on flour per barrel from St. Louis to New Orleans. The barges take it for 5 cents less, which shows that they can afford even at present to transport agricultural produce on the Western waters for less than 3 mills per ton per mile.

By Canal.

The average freights, including tolls, on thirteen principal canals in New York and Pennsylvania, including the Erie, and the Chesapeake and Ohio canals among them, and the aggregate length of all of which is 2,404 miles, varied during the years of 1861 and 1864 from 5 to 35 mills per ton per mile, averaging $13\frac{3}{4}$ mills, or $1\frac{1}{2}$ cents. This we shall assume as the average rate charged on the Illinois and Michigan Canal. The other canals leading into the lakes from the Western waters—as from Portsmouth to Cleveland, from Cincinnati to Toledo, and the Wabash Canal, in Indiana—have gone down, and “have now practically ceased to be *through* carriers either of produce or merchandise.”*

These canals, as compared with those that have proved a success, were contracted in their dimensions. Being shallow they froze readily, and had, on account of the frosts, to crowd all the yearly business into six months time. They were too narrow to pass in six months tonnage enough to pay for the twelve. Their charges were heavy, business inactive, and they have ceased to be considered as among the channels of commerce for through freight between the Ohio and the lakes.

These objections do not apply to the Virginia water-lines, for they will be open all the year; and the James River route should, because of its importance to the whole country, have a capacity as great as the rain fall and the feeders, natural or artificial, by the way can supply.

Nevertheless, and because of its advantageous position, and the readiness with which it may be converted into a ship canal, we shall consider the Illinois and Michigan Canal as a commercial thoroughfare, and practically as the only available water-way for through tariff that at present exists between the Mississippi and the great lakes, and assume 13.7 mills per ton per mile as the average tariff for freight and tolls through it.

By Rail.

The average tariff in 1862 and 1863 on 13 of the principal railways in New York, having an aggregate length of 2,063 miles, was

* P. 14, Manual of Railroads of the United States, 1868-69.

“All the canals constructed in the United States, except the Erie, the Delaware and Raritan, and the Chesapeake and Delaware, may be considered as commercial failures.”—H. V. Poor.

2.86 cents per ton per mile. Ditto of 18 in Pennsylvania, with an aggregate length of 2,661.7 miles, and cost of \$233,672,545.17, was 3.7 cents—say general average of railroad freight, 3 cents the ton the mile.

The actual cost of railway transportation varies with the grades, curves, and other conditions of the road. As for grade, the following tabular statement shows approximately the weight in tons that a common locomotive (24 tons) can draw up various inclines, from level up to a grade of 120 feet the mile :

Grade, feet per mile...	0	20	40	60	80	100	120
Tons	610	307	202	144	112	90	74

Thus the same engine can haul over a level road nearly 7 times as much as she can over one with an ascent of 100 feet in the mile.

Taking these various conditions into consideration, the actual cost of hauling freight over railways may be supposed to vary from 5 to 20 mills, and to average about 16.6.

By Wagon.

The cost of wagon transportation is greater in the Mississippi valley, where the roads are not generally so good, than it is in the seaboard States, where, as a rule, the roads are better. But it may be assumed for the Mississippi valley generally at not less than 10* cents the ton the mile.

Summary Statement as to the Average Rate of Freight in Mills per ton per mile, by Rail and Water, may therefore be stated thus:

	Mills.
By sea (long voyage).....	1.15
Coastwise.....	4.8
River (barges).....	4.
Erie Canal (including tolls).....	9.6
James River and Kanawha Canal (toll-free).....	5.
Canals generally.....	13.7
Railways.....	3 cents.

These figures are not comprehensive enough to enable us fairly to contrast the advantages offered by these great through routes with

* The Government is now paying at the rate of 39.4 cents per ton per mile for trans-Mississippi wagon transportation.—*Quartermaster-General.*

the advantages offered by existing routes. This becomes obvious the moment attention is called to the fact that produce, in passing from the navigable waters of the Mississippi by lake and canal to New York, is subject to various charges and has to be handled four and much of it six times, viz. : twice for loading and twice for unloading in every case on the lakes, for the reason that canal boats cannot navigate them. Consequently when a canal boat arrives at Chicago it has to be unloaded and its cargo put on board a lake vessel, which in turn has on arrival in Buffalo to transfer its cargo to a canal boat. This boat can be towed by a steam tug from Albany to New York. Thus there are two transshipments on the lakes and an additional one for all freight that passes from the Mississippi River either by rail or by Michigan Canal to Chicago. On the Virginia water-line there will be no transshipment, for the same barge which is loaded at Fort Benton, or at the terminus of the Pacific Railway, or at any of the landings along the Mississippi and its tributaries, will, because of its construction and the capacity of the canal, be adapted to the navigation of the James River Canal, and will deliver its cargo in Hampton Roads without breaking bulk by the way.

Therefore not to overstate in favor of Virginia, to whom Nature in her geographical prodigality has been so bountiful, let us take into account but two transshipments by the lake route, though there are frequently three, and allow but 25 cents per ton for each transfer, or 50 cents in all, including in each case both loading and unloading.

DISTANCES FROM THE WEST TO NEW YORK AND TO NORFOLK BY
VARIOUS ROUTES.

GREAT CIRCLE OR AIR LINE DISTANCES (COMPUTED BY CAPT. BROOKE, V. M. I.)

FROM	TO	NEW YORK.	NORFOLK.	DIFFERENCE BY AIR LINE IN FAVOR OF NORFOLK.
		Miles.	Miles.	Miles.
Omaha		1,149.7	1,101.3	48.4
Kansas City		1,095.6	1,008	87.6
St. Louis		878	775.6	102.4
Grafton		890.7	794	96.7
Cairo		859.7	719.3	140.4
Cincinnati		566	471.8	94.2
Chicago		709	694	15
Memphis		955	778	177
New Orleans		1,168	925	243

* In Philadelphia 75 cents per ton is allowed by the Board of Trade for loading alone. The elevators charge two cents the bushel, say 66 cents the ton, for transshipping grain on the Mississippi river.

Thus it appears that Chicago is geographically 15 miles, and New Orleans 243 miles, nearer to Norfolk than to New York by air line ; and if we compare the distances by present routes, via sea or lakes, to New York, with the distances of the same places via the proposed routes to the tide-waters of Virginia, we shall see that the difference in favor of Norfolk is still more striking.

Distances by proposed Routes to Norfolk.

	Miles.
MOUTH OHIO TO NORFOLK.....	1,358*
Mobile to Montgomery.....	176*
Montgomery to Gunter's Landing.....	160a
Gunter's Landing to Chattanooga.....	138h
Chattanooga to Knoxville. a.....	104h
Knoxville to Saltville.....	185h
Saltville (by rail) to Lynchburg.....	176i
Lynchburg (by canal) to Richmond.....	147k
Richmond (by river) to Norfolk.....	125f
MOBILE, VIA COOSA CANAL, TO NORFOLK.....	1,211

Distances between Various Points.

	Miles.
Mobile, via Gulf, to New York.....	1,886b
Mouth of Ohio to New Orleans.....	1,050*
New Orleans to S. W. Pass.....	120a
S. W. Pass to New York.....	1,853b
MOUTH OF OHIO, VIA GULF, TO NEW YORK.....	3,023
Mouth of Ohio to Mouth of Illinois River.....	243*
Mouth of Illinois to Michigan Canal.....	224h
Michigan Canal to Chicago.....	100c
Chicago to Buffalo.....	1,050a
Buffalo to Albany.....	350e
Albany to New York.....	165c
MOUTH OHIO, VIA LAKES, TO NEW YORK.....	2,132
Mouth of Ohio to Mouth of Kanawha.....	743*
Mouth of Kanawha to Mouth James River Canal.....	85b
Mouth of James River Canal to Richmond.....	400f

* Appleton ; a, Map ; b, Bureau Navigation ; c, General Wilson's Railway Map ; e, Engineers' Statistics of New York ; f, President of the James River and Kanawha Canal ; h, U. S. Engineers (these distances on the Tennessee River, though given on the authority of the Engineer Corps, do not appear to me to be quite right) ; i, Va. and Tenn. R. R. ; k, Canal Company.

Comparison of Water Routes as to Length.

FROM	TO NEW YORK VIA LAKES.	TO NORFOLK VIA JAMES RIVER CANAL.	DIFFERENCE IN FAVOR OF NORFOLK.
	Miles.	Miles.	Miles.
Fort Benton.....	5,012	4,673	339
Omaha.....	2,712	2,373	339
Kansas City.....	2,368	2,029	339
Mouth Missouri River.....	1,912	1,573	339
Mouth Illinois River.....	1,889	1,596	293
St. Paul.....	2,637	2,344	293
St. Louis.....	1,932	1,553	379
Mouth of Ohio River.....	2,132	1,353	779
Memphis.....	2,382	1,603	779
Louisville.....	2,519	966	1,553
Nashville.....	2,397	1,498	899
Cincinnati.....	2,661	824	1,837
Wheeling.....	3,043	778	2,265
Pittsburg.....	3,137	872	2,265
	VIA GULF.		
St. Paul.....	4,014	2,344	1,670
St. Louis.....	3,223	1,553	1,670
Cincinnati.....	3,552	824	2,728
Louisville.....	3,410	966	2,444
Pittsburg.....	4,028	872	3,156
Wheeling.....	3,934	778	3,156
Nashville.....	3,288	1,498	1,790
Mouth of the Ohio.....	3,028	1,353	1,670
Memphis.....	2,798	1,603	1,195
		VIA COOSA CANAL.	
New Orleans.....	1,973*	1,475	498
Mobile.....	1,886	1,211	675
Montgomery.....	2,062	1,035	1,027
Huntsville.....	3,433	933	2,500
Nashville.....	3,288		

	VIA MOBILE AND GULF. Miles.	VIA COOSA CANAL AND NORFOLK. Miles.
To Boston from Montgomery.....	2,312	1668.

These tables have been prepared with great care, and on the best authorities. The distances thus given show more clearly than words can paint, the advantages possessed by Virginia in her rare geographical position. They show also the vast importance to commerce and the nation at large of her two great lines of improvement. These figures reveal the fact that as between New York and Norfolk,

* The distances are in statute miles. In the former edition they were expressed in nautical miles.

Norfolk is not only the nearest Atlantic seaport to the great valley of the West, but that these two lines would open a shorter and cheaper route to New York than either the lakes or the Gulf now afford from every place between New Orleans* and St. Paul, and from Fort Benton to Mobile.

The distance from Norfolk to New York is 279 sea miles. And Norfolk, by the proposed routes, will be 293 miles nearer than New York is by present routes, to all places on the Mississippi River that are situated above the mouth of the Illinois River. When we come below that, and get on the Ohio, then the flourishing cities on both sides of that river will be from 1,000 to 1,500 miles nearer to New York, via Norfolk, than they are either via Gulf or lakes. By the Coosa route New Orleans will be 498 miles nearer to New York than she now is via Gulf, and Mobile 675, while Montgomery and Huntsville will be brought, the one 1,000 and the other not less than 2,500 miles, nearer than they now are.

No cities on the seaboard have a greater interest than Boston, New York, Philadelphia, and Baltimore, in the early completion of these two routes, as a little attention to the foregoing Tables of Distances will show.

The distance of Pittsburg and Wheeling from New York by present water-routes, is greater than the distance from New York to England; and the opening of the Virginia water-line would place them commercially as near to Liverpool as by water they now are to New York.

By opening the Virginia water-line, the distance both from Cincinnati and Louisville to the Atlantic would be shortened, and made nearer to Norfolk by more than 1,500 miles, than they now are to New York by water. And if we measure the present distance of these two cities from New York by rail, according to freight, it appears that the railroad transportation from their wharves to New York, costs as much as would satisfy the freight on 5,000 miles of such a water route as the opening of the James River improvement would give. In other words, the cost of getting to the Atlantic sea-

	Miles.
* New Orleans via Gulf to New York, ...	1,973
“ “ Coosa Canal and Norfolk to New York, ...	1,798
	175

This is the distance according to the United States Engineers, though by the map the distance appears to be nearly the same.

board would, by opening this Virginia water-line, be so diminished in comparison with what it is now by rail to New York, that the farmers in large portions of Ohio and Kentucky could send their grain via Norfolk to London at a less cost than the railroads now charge for delivering it on board ship in New York.

Taking into consideration the tariffs which farmers especially have to pay for sending their produce over long lines of railroad to the markets of the Atlantic seaboard—taking also into consideration the long and circuitous routes by lake and Gulf, with the dangers and interruptions to which these routes are liable, we are brought face to face with the startling fact, that our farmers in all those vast and fertile regions of which Cincinnati and Louisville, Nashville and Huntsville, are the commercial centres, are as far from the grain markets of our Atlantic seaboard as are the farmers of California, or as their competitors who grow grain in the valley of the Black Sea are from England.

In the valley of that sea lies the granary of Europe ; in the Mississippi valley, that of America. London is the great grain market of the world, and these Virginia routes would enable the farmers, especially in the fertile regions that are watered by the Ohio, the Tennessee, and the Cumberland, and which are now practically shut out from the grain markets of the Atlantic seaboard, successfully to compete upon the Corn Exchange of London with the Black Sea farmers. These Virginia routes would open a way for them there, and give them an advantage over the continental competitors of several cents in the bushel.

Taking Boston as the cotton market for domestic manufacture, and Montgomery, Alabama, as the centre of the cotton-growing region, this south-western line through Virginia would bring these two important points nearer together, through the Chesapeake, than they now are by the Gulf, and lessen the distance between them some 640 miles, giving them a water-way with a portage of only 176 miles on a double track national railway. Indeed, the table of distances (page 35), which has been most carefully prepared from the best maps and authorities, shows the fact, that will no doubt be startling to many, that these Virginia routes will bring all places on the Mississippi River above Memphis, and all places on the Missouri and its tributaries, nearer to Norfolk than they now are via river and Gulf to New York, by more than 1,600 miles ; and that they will bring all the landings and river towns on the Ohio from 1,700 to 3,100 miles nearer to Norfolk by water than they now are by river and Gulf to New York.

**FREIGHT BY PRESENT WATER ROUTES TO NEW YORK, COMPARED WITH
FREIGHT BY THE PROPOSED ROUTES TO NORFOLK.**

We have seen the saving in distance which the opening of these routes through Virginia will effect in transportation between the Atlantic seaboard and the markets of Europe on one hand, and the Mississippi valley on the other. Let us calculate the gain in dollars and cents which the farmers of that valley will, with these routes opened, make on every bushel of grain produced by them.

To do this let it be assumed that the average mile-tonnage along these various lines is 4 mills by river, 4.8 mills coastwise and by Gulf, 5 mills on the James River Canal (400 miles), and 5 mills on the Coosa Canal, 30 miles long. These two canals should, on account of their great national importance, be toll-free. Therefore, carriers' charges of 5 mills per ton is assumed as the mile freight on them. The freight, tolls and carriers' charges through the Illinois and Michigan Canal (100 miles long), is assumed at 1.37 cents as the rate for that part of the route ; and 2 cents the mile are allowed on the double-track national railway of 176 miles, from Saltville to Lynchburg. It will be shown that a tariff of 2 cents the mile on such a road, even though it be not national or toll-free, will be ample to defray all expenses, and reimburse, in the course of a few years, for the cost of construction.

Tariff by Different Routes.

From Chicago via Lake Erie Canal and Hudson River, the distance is 1,565 miles. According to the statistics furnished from the office of the Canal Auditor of New York, the average freight, taking the mean of the last six years, was, from

Chicago to Buffalo, per ton.....	\$3 26
And from Buffalo to New York.....	5 56
Michigan Canal, 100m.x1.37 cts.....	1 37
Illinois River, 224m.x4 mills.....	90
TOTAL, MOUTH OF ILLINOIS RIVER TO NEW YORK.....	11 09

This is exclusive of Lake insurance, the cost of transshipment at Chicago from canal boat to lake vessel, and from the latter at Buffalo to Erie Canal boat ; for canal boats and barges cannot navigate the great lakes.

Nor does this charge of \$11 09 include transshipment, wharfage, storage, commission, or any other charges by the way. In Phila-

delphia, the regular charge allowed by the Board of Trade for loading a ship, is 75 cents the ton ; and on the Mississippi, 2 cents the bushel, or 66 cents the ton, is the charge for lifting grain by elevators. All produce that goes via the Illinois River and Canal en route to New York, has to undergo three transshipments. But not to over-estimate the expenses by this route, and considering that a small proportion only of Western grain goes that way, let us allow for only two transshipments from the Mississippi River via the lakes, and 25 cents instead of 66, as the expense of each of the two. Let therefore the total expense of shipping a ton of grain from the Mississippi River via Mich. Canal and the lakes to New York be taken as:

For freight.....	\$11 09
Two transshipments, at 25 cents each.....	50
	————\$11 59
From New Orleans to S. W. Pass, 120m.x4 mills.....	\$0 48
S. W. Pass to New York, 1,853m.x4.8 mills.....	8 89
One transshipment.....	0 66
	————\$10 03

No allowance is made here for insurance, which is from 2 to 2½ per cent., nor for storage and wharfage, and other numerous charges which Western produce seeking an outlet via the Mississippi and the Gulf to market has to undergo. These charges, in the aggregate, amount to several dollars additional.

From Mobile to Boston, 2,136 miles, at 4.8 mills.....\$10 25

The shipping at Mobile lies down in the Bay, some miles from the city ; the expenses here for lighterage, transshipment, &c., are also very heavy. Including all these various items, with insurance, we may safely set them down at \$2 50 each, both for New Orleans and Mobile. Therefore, the charges of all sorts for sending forward produce from these two cities, may be set down at not less than \$12.50 per ton to New York from New Orleans, and at \$12.75 to Boston from Mobile.

To New York from—

Mouth of Kanawha River to Canal, 85 m., at 4 mills.....	\$0 34
James River Canal to Richmond, 400 m., at 5 mills.....	2 00
Richmond to Norfolk, (river,) 125 m., at 4 mills.....	50
Total from mouth of Kanawha to Norfolk.....	\$2 84

On this route there is no transshipment, insurance or storage.

From Mobile.

To Coosa Canal, 306 m., at 4 mills per ton.....	\$1 22
Canal to Tennessee River, 30 m., at 5 mills.....	15
Gunter's Landing to Saltville, 427 m., at 4 mills.....	1 71
Saltville (rail) to Lynchburg, 176 m., at 2 cents.....	3 52
Lynchburg (canal) to Richmond, 147 m., at 5 mills.....	73
Richmond (river) to Norfolk, 125 m., at 4 mills.....	50
Two transshipments, at 25 cents each.....	50
	\$8 33
Norfolk to Boston.....	3 05
Transshipment.....	25

From Mobile to Boston.....\$11 63

Saving via Norfolk to Boston..... 1 12

Freight from Mouth of Illinois River.

Via Lakes to New York.....\$11 59

“ James River to Norfolk..... 6 78

\$4 81

Four dollars and eighty-one cents is therefore the saving on a ton of freight shipped from Grafton and all the Mississippi landings above the mouth of the Illinois River.

From Mouth Missouri River.

Via Lakes to New York.....\$11 68

“ James River Canal to Norfolk..... 6 69

\$4 99

Four dollars and ninety-nine cents is therefore the saving on every ton of freight from the Eastern terminus of the Pacific Railway and from all the landings along the Missouri River.

From Mouth Ohio River.

Via Lakes to New York.....\$12 56

“ Virginia water-line..... 5 81

\$6 75

Six dollars and seventy-five cents, therefore, is the saving which the Virginia water-line will effect in the transportation to the Atlan-

tic seaboard from all places on the Mississippi River *below* the mouth of the Ohio.

From Mouth of the Tennessee.

Via Lakes to New York.....	\$12 75
“ Virginia water-line to Norfolk.....	5 62
	\$7 13

Seven dollars and thirteen cents is the amount per ton by which the Virginia water-line will cheapen transportation from all the landings on the Tennessee River.

From Nashville.

Via Lakes to New York.....	\$13 62
“ Virginia water-line to Norfolk.....	6 39
	\$7 23

Seven dollars and twenty-three cents the ton is what the farmers in the valley of the Cumberland would save by the Virginia route.

From Louisville.

Via Lakes to New York.....	\$14 11
“ Virginia water-line to Norfolk.....	4 26
	\$9 85

From Cincinnati.

Via Lakes to New York.....	\$14 68
“ Virginia water-line to Norfolk.....	3 69
	\$10 99

From Mouth of Great Kanawha.

Via Lakes to New York.....	\$15 53
“ Virginia water-line to Norfolk.....	2 84
	\$12 69

The Virginia water-line, therefore, would enable Wheeling, Pittsburg, and all the shipping ports on the Ohio *above* the mouth of the Great Kanawha, to fetch and carry from the sea \$12.70 the ton cheaper than they can by present lake and river routes to New York.

Via Gulf to New York, and Virginia water-line to Norfolk.

From Mouth of Ohio to New York.....	\$16 20
“ “ Norfolk.....	5 81
	\$10 39

- The Virginia water-line would enable shippers in St. Louis, Dubuque, St. Paul, and all the towns both on the Missouri and the Upper Mississippi *above* the mouth of the Ohio, to send forward their produce by this route, and deliver it on board ship at Norfolk \$10.39 cheaper than at New York.

From all places on the Ohio the charges to Norfolk by the Virginia route would be from \$10.39 to \$16.34 less than they are now to New York via Gulf.

From Memphis the charges to Norfolk would be \$8.39 less than they now are by Gulf to New York.

TO NORFOLK VIA COOSA CANAL, SALTVILLE, ETC.

From New Orleans.

Via Gulf to New York.....	\$12 50
“ Coosa route to Norfolk.....	9 50
	\$3 00

Three dollars the ton, or 9 cents the bushel, would therefore be the saving by this route to Norfolk, over the Gulf route to New York, from New Orleans and all places on the Mississippi River.

From Mobile.

Via Gulf to New York.....	\$11 50
“ Coosa route to Norfolk.....	8 33
	\$3 17

From Montgomery.

To New York via Gulf.....	\$12 20
Via Coosa route to Norfolk.....	7 63
	\$4 57

From Huntsville.

Via Mississippi and Gulf to New York.....	\$18 15
“ Coosa route to Norfolk.....	7 45
	\$10 70

RECAPITULATION.

*Saving in distance and dollars to be effected via Virginia water-line
as against the Lake route.*

FROM	TO NEW YORK, VIA LAKES.	TO NORFOLK, VIA VA. WATER LINE.	DIFFER- ENCE.
St. Paul	\$14 58	\$9 77	\$4 81
Dubuque	13 58	8 77	4 81
Mouth Illinois River	11 59	6 78	4 81
“ Missouri River	11 68	6 69	4 99
Terminus Pacific R. R.	14 88	9 89	4 99
St. Louis	11 76	6 61	5 15
Mouth Ohio River	12 56	5 81	6 75
“ Tennessee River	12 75	5 62	7 13
Huntsville	14 46	7 33	7 13
Mouth of Cumberland	12 80	5 57	7 23
Nashville	13 62	6 39	7 23
Louisville	14 11	4 26	9 85
Cincinnati	14 68	3 69	10 99
Mouth Great Kanawha	15 53	2 84	12 69
Wheeling	16 20	3 51	12 69
Pittsburg	16 58	3 89	12 69
Memphis	13 56	6 81	6 75

FROM	TO NEW YORK, VIA GULF.	TO NORFOLK, VIA VA. WATER LINE.	DIFFER- ENCE.
Huntsville	\$18 15	\$7 45	\$10 70
Mouth Cumberland River	16 44	5 57	10 87
Nashville	17 26	6 39	10 87
Louisville	17 75	4 26	13 49
Cincinnati	18 32	3 69	14 63
Mouth Great Kanawha	19 17	2 84	16 33
Wheeling	19 84	3 51	16 33
Pittsburg	20 22	3 89	16 33
Memphis	15 20	6 81	8 39
		VIA COOSA CANAL AND SALTVILLE.	
New Orleans	12 50	9 50	3 00
Mobile	11 50	8 33	3 17
Montgomery	12 20	7 63	4 57
Huntsville	18 15	7 45	10 70

FROM	TO NEW YORK, VIA GULF.	TO NORFOLK, VIA VA. WATER LINE.	DIFFER- ENCE.
St. Paul.....	\$20 16	\$9 77	\$10 39
Dubuque.....	19 16	8 77	10 39
Mouth Illinois River.....	17 17	6 78	10 39
" Missonri ".....	17 08	6 69	10 39
Tennessee Pacific R. R.....	20 28	9 89	10 39
St. Louis.....	17 00	6 61	10 39
Mouth Ohio River.....	16 20	5 81	10 39
" Tennessee River.....	16 39	5 62	10 77

This table is very instructive. If it be assumed that 40 cents for freight and transshipment *alone*, in addition to the usual charges for commissions, insurance, wharfage, drayage, storage, &c., is as much as Western grain can afford to pay for a sea market, it follows that grain, except at famine prices, cannot now go forward to the markets of the seaboard from any place in the West where the freight named in the table is greater than \$13.20 the ton, which is 40 cents the bushel.*

By present routes, there are several transshipments, each of which involves delay and expense. Whereas by the Virginia route all shipments from the West being through, would be exempt from all such charges by the way-side.

At 3 cents the ton the mile, 40 c. the bushel will carry grain only 440 miles by rail.

None of the places named are within 440 miles by rail of New York. And though a portion of the grain crop *does* go forward from commercial centres as far west as Chicago, it pays more than 40c. a bushel. Wheat often pays a dollar or more. But that shows in a still stronger light the necessity of a cheaper route than any now existing.

Each of the places named in the table is itself the commercial emporium of a district of country of greater or less extent, wealth, and population. And to the freight lists from these points have to be added the expense of fetching and carrying from home.

The heaviest freight by the Virginia route is from the Eastern terminus of the Pacific Railroad at Omaha. It is the most distant

* The freight given in the table from Dubuque to New York is \$13.58 the ton, or 41c. the bushel. But the officers of the U. S. Corps of Engineers, charged with the improvement of Western rivers, state, in their official report, that the actual cost of sending grain by existing routes from Dubuque to Eastern markets is 68c. the bushel, or \$22.44 the ton, including all charges.

place in the table, and the freight thence to Norfolk would be \$9.89 the ton. This gives 30c. the bushel, or 11c. less than it now has to pay to get to New York, via the Great Lakes.

Let us then examine this table, and see what parts of the West are at present cut off from the grain markets of the East, and to which the Virginia route would open a way.

All places on the Mississippi River, above Dubuque; all on the Missouri, above Lexington; all places on the Ohio, above Evansville, with the entire valley of the Tennessee and the Cumberland for a short distance above the mouth of these rivers, are now entirely shut out from the grain markets of the East, or they have to pay very dearly to get to them. The people throughout all these regions—and there is no finer grain country in the land—have therefore to convert their corn into stock, or turn it into pork, before they can get it to the market. All know what an expensive process that is for making grain merchantable.

The figures in the table therefore indicate very clearly where the sections of the country are where the farmers, for the want of this untaxed highway through Virginia to the sea, have to put their grain on the hoof, or distil it, in order to get it to market.

What the Virginia Route would save to the Farmers in the Mississippi Valley.

Were these routes open, the grain markets in all the river towns from St. Paul to New Orleans, from Mobile to the folds of the Rocky Mountains, could deliver their produce in Norfolk at from 7 to 50 cents the bushel cheaper than they can now send it to New York; or, taking the average of the whole, the opening of Virginia routes would save 22 cents the bushel upon the transportation seaward, of the pulse, and grain, and all agricultural produce that is grown in that region,—in no inconsiderable portion of Georgia,—in the greater part of Alabama, Mississippi and Louisiana,—of Ohio, Indiana, Illinois and Minnesota,—in much of Texas, and the whole of Arkansas, Tennessee, and Kentucky, West Virginia, Missouri, Iowa, Nebraska, Kansas and Colorado.

This saving of 22c. the bushel (call it 20c., or \$6.50 the ton) would not be a gain merely upon that portion of the crop that is sent forward over the Virginia route. It would enhance just as much the value that remains behind.

As an illustration, suppose the expenses of sending the cotton crop to Liverpool were reduced simply to *nil*. That would not affect the price in Manchester. Spinners would still give the same, and

the producer would gain the saving in freight, and this he would continue to enjoy so long as the demand and supply should maintain their present relations.

This, however, would not be so with grain, and for obvious reasons. There the supply and demand are nearly in *equilibrio*, and by lessening the cost of transportation both producer and consumer would be benefited.—Let us suppose equally. That is, of the 20 cents saved in the transportation, 10 cents would go to the producer, and 10 cents to the consumer of every bushel of potatoes, apples, peas, beans, and dried fruit, that comes from the West. And this enhancement of 10 cents would not only apply to the bushels of grain and potatoes that are sent to the markets of the Atlantic seaboard, but to all that remains at home for sale in local markets, precisely as the rise of a penny upon cotton in Liverpool affects the price of cotton that remains for home consumption in the cotton States, as well as that which goes abroad.

*Grain and Potato Crop of 1866 in Nineteen States.**

STATE.	BUSHEL.	VALUE.
Virginia.....	41,399,733	\$36,674,208
Georgia.....	18,295,026	28,617,643
Alabama.....	23,228,705	35,117,846
Missouri.....	12,685,867	19,766,722
Louisiana.....	7,205,670	8,748,915
Texas.....	23,662,945	23,057,708
Arkansas.....	12,785,522	14,986,611
Tennessee.....	55,603,807	47,819,238
Kentucky.....	75,631,883	41,453,178
West Virginia.....		
Mobile.....	55,221,611	37,074,871
Illinois.....	221,529,394	136,824,850
Indiana.....	151,851,809	85,021,139
Ohio.....	140,270,881	95,949,180
Wisconsin.....	52,693,102	55,079,282
Minnesota.....	30,779,743	22,388,548
Kansas.....	7,263,858	5,133,664
Iowa.....	84,428,426	53,530,646
Nebraska.....	2,940,188	2,180,213
	1,027,417,500	\$748,824,562

If 10,000,000 bushels, worth \$5,476,000, be allowed for W. V., then the crop for the current year in these 19 States may, according to the decimal ratio of increase, be set down in grain and potatoes at not less than 1,100 millions of bushels in quantity, and \$800,000,000 in value.

* Report of Department of Agriculture, 1866, pp. 53-60.

Let us pause and consider these figures, with the conclusions to which they lead. An enhancement of 10 cents the bushel on all that produce would increase the annual rental of the 41,984,919 acres of land that yields it, \$2.20 the acre, and add \$100,000,000 more to the value of the crop ; and so these Virginia improvements, with their magic influences, would increase the national wealth far more than any treasure that can be dug from the mines of silver and gold that are in the "Far West," as rich as they may be.

This untaxed highway from the valley of the Mississippi to the harbors of the Chesapeake Bay, is the real key which we are told the nation is forging to open the strong-box that contains the precious metals that "are locked up in the sterile mountains of the Far West."*

The real treasures of the land are not in the Rocky Mountains, or the mine ; they are in the Mississippi valley and its soil.

The total product of the precious metals from all the mines of the United States for the year ending December 31, 1866, was \$75,000,000,† and it is falling off. The crop of cotton alone last year was worth thrice that sum, and in the pent-up States of the Mississippi valley there is an annual production of human food exceeding in value that of the gold and silver yield more than tenfold, and yet the nation suffers it to remain locked up, simply because the farmers there have not required Congress to turn the key that nature has given to Virginia, and which she freely offers.

Nor is this all, for "a penny saved is a penny gained." These locked up States are the granary of New England, as well as of New York, New Jersey, and Pennsylvania. These States have a present population of 12 millions ‡, who are as deeply interested in the cheap commercial highway through Virginia to the West as are the 20 millions, who inhabit the valley and the adjoining States. Such highways as those that are now proposed, would not only give New England cheaper bread, but better markets ; vastly increase the business of fetching and carrying between her workshops and the Atlantic seaboard, but diminish also the cost of transportation both ways, and lessen it proportionately upon everything as much as upon grain. We have seen that the farmers of Iowa and other trans-Mississippi States have to pay 68c. the bushel to get their wheat to the Atlantic seaboard. *This is 10c. the bushel more than the farmers of California have to pay for sending theirs around Cape Horn*

* Presidential Inaugural Address.

† Mineral Resources of the United States, p. 6.

‡ Estimated.

to New York.* Need we any fact more startling than this to stir the people of the West up to the importance of those highways through Virginia to the sea.

**ALL GREAT OVERLAND ROUTES REQUIRE TRANSPORTATION BOTH
BY RAIL AND WATER.**

The improvements which connect New York, Philadelphia, and Baltimore with the interior, show in their workings and by their results what is required for the tide-water cities of the Chesapeake Bay and its tributaries. They show, in characters too plain to be mistaken, that the wants of the West, the demands of commerce, and the welfare of the country require both rail and canal to serve the interests involved.

It is held, and correctly, by the New York engineers, where the data are so ample for studying the effect of railways and canals upon industrial prosperity, that there is in the internal trade of the country a large class of goods which always prefer the rail to the water, and that no great line of trade and travel can satisfy the requirements of the age, or fully meet the demands of commerce, unless it combine transportation both by rail and water lines.

The New York Central Railroad and the Erie Canal run side by side. Neither would be complete without the other. Each is required to do the work that the other cannot perform. Each supplements the other.

In Pennsylvania the Reading Railway was built to supplement the Schuylkill Canal. There too the Delaware, Lehigh, and Susquehanna rivers and canals have railways also running alongside of them.

The Potomac River has the Chesapeake and Ohio Canal, with the Baltimore and Ohio Railroad to accompany it, and the James River has its canals with its accompanying railroads.

Indeed, from Dunleith, in the far north-west corner of Illinois, there are lines of railway which, under different names, run south along with the Mississippi River itself, touching it now and then on the way, and terminating both at New Orleans and Mobile.

The Isthmus of Suez has both its railway and canal. The great American Isthmus has already the one, but the country is now clamoring for the other also.

The great overland routes of commerce require, as is thus seen, both modes of transportation; and the time is fast approaching

* In December last the David Crockett brought a cargo of wheat from San Francisco to Philadelphia for 58c. the bushel. At the same time the tariff route on wheat by rail from Chicago to Philadelphia was 51c. the bushel.—*Chicago Post*.

when these grand Virginia thoroughfares between the heart of the country and the sea, will be second only to the Isthmian routes.

Therefore while the James River Canal is in process of enlargement and completion, great interests, national, State and individual, require the construction of another track—a freight track to pass produce and merchandise between the present terminus of the James River Canal and the head of navigation on the Kanawha River.

The Alleghany Mountains forbid a canal to the Mississippi Valley from the Delaware Bay, or from any point north of Virginia, and because of this, Pennsylvania constructed a railway which had to lift over these mountains its traffic with the West, by means of stationary power and ten inclined planes.

In 1854, the Pennsylvania Railway Company first established connecting links between opposite sides of the mountains so as to avoid those lifts, and in that year the gross receipts of this company amounted to \$3,512,295. They have continued to swell, and in 1867, they reached \$16,340,156.36—and \$17,233,497.31 in 1868. Capital \$27,040,762.56.*

Last year the general average of freight of all sorts over this road was one cent and 9 mills per ton per mile, and the net earnings of the road amounted to \$5,372,513.43.

The Company is now advocating a third track, to take the place of a canal, and to serve as a heavy freight line, with cars and engines to travel at the rate of not more than six miles an hour. These cheap and slow freight trains are to be provided with mess and sleeping arrangements and with hands sufficient to run them day and night *a la* canal-boat. Such a road is required across the mountains of Virginia while the canal is being dug.

NO STATES MORE DEEPLY INTERESTED IN THE VIRGINIA WATER
LINE THAN KENTUCKY, OHIO, INDIANA, ILLINOIS, WISCONSIN,
MINNESOTA, IOWA, AND MISSOURI.

It appears by the statistics already quoted that these States could send their grain to Eastern markets by this line at from 15c. to 33c. cheaper (the bushel) than they now can via the canals and lakes to New York; indeed much cheaper, as the following statement cut

* See Annual Report of Pennsylvania Railroad Company, February 10th, 1869.

from a New York paper just received, as to the expenses of a bushel of grain shipped 200 miles west of Chicago, will show :

	<i>Cents.</i>
Freight by rail to Chicago.....	20
Inspection (in and out).....	$\frac{1}{4}$
Storage.....	$2\frac{1}{2}$
Commissions.....	$1\frac{1}{2}$
Freight to Buffalo.....	$6\frac{1}{2}$
Insurance.....	$1\frac{1}{4}$
Elevator at Buffalo.....	2
Handling.....	$\frac{1}{4}$
Commissions at Buffalo.....	$1\frac{1}{2}$
Freight by Canal to New.....	$13\frac{1}{2}$
Expense in New York.....	3
Total expenses.....	<u>52$\frac{1}{4}$</u>

The Productions of these States.

The estimated crop in grain and potatoes for the current year in these eight States is 900 millions of bushels, worth \$585,000,000. It is to be the yield of 35,000,000 acres. The average value of this produce at the place of production is, according to the statistician of the Government, 65c. the bushel, and the opening of this water-line through Virginia would, by the saving of transportation, enhance the value of this crop from \$100 to \$200 millions, and increase the annual rental of these lands from \$4 to \$8 the acre.

To get from the Mississippi over into Lake Michigan any of the grain from other States that is once floated on that river, costs—according to General Warren, who is charged with the improvement of the Upper Mississippi—\$5 the ton*, with a charge of 66c. additional for transshipments from river to rail. That is, after this grain has paid expenses of getting to the railroad by river, it has to pay \$5.66 to get to Lake Michigan ; and when there, it still has to pay \$9.32, exclusive of wharfage, commissions, insurance, and the like, to get to New York. Thus showing, for most parts of these eight States, a difference between the Lake route and the Virginia line of from 21c. to 31c.† the bushel upon these 900,000,000 bushels of grain and potatoes.

* See his financial report to the Engineer Bureau, dated October, 1868. Memorial of the Canal Convention at Prairie du Chien.

† The producer in all cases does not get the *sole* benefits of cheapened transportation. When the increased supplies which cheap transportation brings forward tend to glut the market, then the consumer shares with the producer in the benefits. But the people of these States have other products than grain.

No wonder, therefore, that the cry of the North-west is—as the Governor of Iowa has said—for “cheaper freight.”

At the rate of 4 mills the ton the mile for barge transportation on rivers, the \$5.66,* which it costs to get Minnesota grain from the Mississippi River to Lake Michigan, will carry it to a point on the James River and Kanawha Canal, whence \$2.62 will place it in Hampton Roads; and the same money that will take a cargo of grain from St. Louis up the Mississippi to Fulton, tranship it there, and deliver it by rail in Chicago, will carry it by the Virginia water-line, and deliver it on board ship in Hampton Roads.†

The Virginia line is clearly the route for the farmers of these States, and Hampton Roads their seaport. The grain of these States is but a portion of their produce. There is, besides those eight States and their produce, a dozen others in the West and South, with their cotton, sugar, rice, hemp, tobacco, their grain and root crops; the products of the mine, the pasture, the forest, and the factory, with fruits and vegetables in great variety and abundance, are to be reached by these improvements.

The Drawbacks to the Lake Route.

These consist not only in the seal which the Frost King annually sets upon it for 5 months, but in other physical conditions, which make the Lake route, mile for mile, more expensive than the Virginia water-line promises to be.

The fleet of vessels that are employed every season on the Great Lakes is an immense one. It is estimated at 1800 sail, and the canal boats that are engaged in fetching and carrying for the lake trade during this season are multitudinous.

Did it never occur to the Western farmer and those who use this

* The Canal Convention at Prairie du Chien, 10th November, sets it down at 2.9 mills. See their Memorial to Congress.

† St. Louis to Fulton, 392 miles × 4 mills.....	\$1 57
Transhipment to railroad.....	0 66
Freight to Chicago.....	5 00
	———— \$7 25
St. Louis to James River Canal, 1,028 miles × 4 mills.....	\$4 11
James River Canal to Richmond, 400 miles × 5 mills.....	2 00
Richmond to Hampton Roads, 125 miles × 4 mills.....	0 50
	———— \$6 61
Difference in favor of Norfolk.....	\$0 64

route, that for every seven days of service rendered by this flotilla, they have to pay for twelve? Such is the fact. The lakes and their connecting canals are open to navigation only 7 months out of the 12, and the earnings by the vessels engaged during this time must be not only sufficient to remunerate for seven working months, but sufficient also to pay the expenses of the 5 idle months.

The expenses of these 5 months are enormous, interest on the dormant capital is but a part of them. The ordinary deterioration of vessels in active sea service averages 14 per cent. per annum, and a vessel in ordinary—like an uninhabited house—decays much more rapidly than it does in use.

That Western farmers may realize what they have to pay, in consequence of this annual interruption of lake navigation,—let us ask each one to fancy to himself one of his neighbors so situated as to be compelled always to pay for 12 days' work, but never to get more than 7. Nor does this view present fairly *all* the inconvenience and expense to which the West is subjected on account of this annual freezing up of navigation. As all the lake transportation has to be done in seven months, the West has to supply nearly double the tonnage, and nearly twice the number of vessels and crews for it, that it would require if it had a water route open during the whole year.

The number of vessels that are now employed in commerce to and fro on lake and canal, is in round numbers not less than 3,000. They have to compress in seven months the business of the whole year; and common arithmetic shows that 1750 vessels could fetch and carry as much in 12 months as 3,000 do in 7.

The water route through Virginia is free from all these physical obstructions; the vessels that use it are not vexed by storms nor strained by the waves. It is shorter than the lake route, and it is annually open 350 days on an average.

Besides, on it the Western people would not have to support 12 vessels to do the work of 7, but each would answer for itself, and there would be no winter lying up, no idle capital to pay for, &c.

In comparing the cost of freights by the Lake route and the Virginia water-line, the advantages of the latter have been underestimated in this report, as will appear obvious to any one after a moment's reflection; *e. g.* the freight allowed from Chicago to Buffalo by lake averages 3.1 mills per ton per mile, while that allowed on the Virginia route is 4 mills. If lake transportation can be done for 3.1 mills per ton per mile, large transportation on the

rivers* ought with wholesome competition to be brought to still smaller figures.

Because of boisterous navigation, lake tonnage not only costs more to build than river tonnage, but on the lake route 3,000 vessels are employed to do the work annually which 1750 could do there in a year if there were no interruption by ice.

As it is now—of that portion of the grain of the West which reaches the Atlantic seaboard, only about half of it can take the Lake route, simply because the New York canals during the seven months of open navigation, can pass no more.

There are those who, smarting under the necessity of new and better outlets for Western produce, are urging the general government to enlarge the Illinois and Michigan Canal, to improve the Fox and Wisconsin rivers, and open a navigable way across the portage between them, from the Mississippi to the lakes.

The improvement of the Illinois River and the enlargement of the Michigan Canal, are more important as works for the national defence than for commercial purposes. The importance of this canal as a work of defence was demonstrated in connection with the Navy Yard at Memphis, some 25 or 30 years ago.

The New York canals have already more than they can do, and there is no use in forcing produce into the Western lakes when there is no outlet for it from the Eastern.

The movements of produce there already show this, for as the population and crops increase in the West, the *proportion* of the latter sent forward by the lakes decreases; *e. g.* of the grain shipped from the ports of Lake Michigan while the navigation was open, there went Eastward by rail:

- † in 1864—4,909,489 bus. or $8\frac{1}{2}$ per cent. of the whole;
- in 1865—7,156,717 bus. or 10 per cent. of the whole;
- in 1866—15,474,456 bus. or $18\frac{1}{2}$ per cent. of the whole.

According to official documents it appears that just about half the grain that is now annually sent to the Eastward from Chicago can be crowded through the lakes and canals in 7 months. The rest goes by rail in winter. What does it pay? Not lake freight, but about three times as much as may be gathered from the following

* The Canal Convention of Prairie du Chien in the Memorial puts it down at 2.9 mills.

† Table and Memorial of the Canal Convention of Prairie du Chien, 1868.

figures, which are derived from the Annual Report of the Canal Auditor to the New York Legislature, for 1866.

The tons moved one mile in 1866 on the Erie and Central railroads amounted to 809,561,319, and the freight to \$20,282,943. While on the New York canals the one mile tonnage was 1,012,888,034, and the freights \$10,160,651. Showing that that quota of the Western grain crop, with all the produce and merchandise that goes forward in winter, when the lakes are closed, has to pay nearly five times as much as in summer for the canal part of the route, and five times as much as it pays for the lake part.

But suppose New York should conclude to open a way by making the Erie Canal still wider and deeper. In that case the West will still have to pay whatever tolls that State may choose to exact, for the right of way to the sea; and the burden of maintaining fleets for 12 months to render service for 7 will still have to be borne by the Western farmers.

The immediate effect of opening an untaxed water-way through Virginia would be to revive foreign trade, and to increase the value of every farm throughout the whole extent of country that lies south of the dividing line between Norfolk and New York. (See Map III.)

The Commerce of the Country languishes for the Want of Convenient Outlets from the Mississippi to the Atlantic Ocean.

It is a remarkable fact that the domestic exports of the United States are falling off, while those of France and England are largely on the increase. Why is this? The population of the United States increases far more rapidly than theirs. Annually, immense areas of new land are subdued and brought under cultivation in the West; whereas there, every foot of ground is already occupied.

The true reason of this falling off is to be found in the circumstance that the political economists of the country have not duly considered the *geographical* position of Virginia, or pondered the fact that the West is shut out from the sea. It has no way of sending its increasing supplies of agricultural produce to the seaboard; its wheat and corn cannot afford to pay the charges on 1,000 miles of railroad. The Erie and the New York canals are already taxed to their utmost capacity, and there is no way of sending off any increased production. Is it, therefore, any wonder that foreign commerce languishes, and that officers of the Army should report to the Government that grain grown 100 miles west of Chicago,

cannot afford to pay its way to that city and thence to New York, even by lake and canal?

Neither can it afford to descend the Mississippi, meet the dangers of the Florida pass and incur the expenses of a voyage of upwards of 3,500 miles from its place of production to the wharves of New York, when, with a little judicious legislation, it might get there by a rail and water route of about one-third that distance.

Until these outlets through Virginia be opened that section of the country must continue to suffer with plethora, and the domestic exports of the country, and consequently its foreign commerce, to languish.

So pressing and urgent have the demands for new, cheaper, and better outlets from the West already become, that in the course of this Survey it may be well worth while to examine and see if it be not practicable to improve the James River itself from Richmond to Lynchburg, as the navigation of the Ohio is being improved at the Falls of Louisville, so as to make it navigable for steamboats of the largest class from Hampton Roads to Lynchburg. The two great through routes advocated in this report, one leading up the Holston, the other up the Kanawha, and down to the James River, will meet at Lynchburg, and tax the capacity, not only of rail and canal, as the Erie Canal is now taxed, but of the James River itself thence to tide-water.

The Three Rivals.

France, England, and the United States are the three great maritime powers. They are commercial rivals, and the United States lag behind. A few statistics may impress this upon the public mind and suggest a remedy.

In the seven years ending with June, 1867, Great Britain increased the value of her domestic exports \$237,000,000, or 30 per cent., and France hers \$226,000,000, or 43 per cent.; this country fell off in hers \$39,000,000, or "over 10 per cent."*

To what is this falling off due? Certainly not to the dilapidated condition in which the South was left by the war, for though the leading Southern staples show a falling off of \$54,000,000, according to the same statistician, the domestic exports of the South,

* Alexander Delmar, p. 35, Commerce and Navigation, U. S., 1867.

1867, amounted to 69 per cent. of the whole country. The official figures are :

Total exports of Southern products for the year ending 30th of June, 1867.....	\$328,406,757
Total exports of Northern States.....	\$143,201,243
Total—currency.....	\$471,608,000*

Moreover, during those seven years there was added to the exports of the North an entirely new article of commerce in the shape of petroleum, the exports of which amounted in 1867 to \$17,000,000. So but for this accidental source of wealth the domestic exports of the country would have fallen off \$56,000,000 instead of \$39,000,000.

During these seven years the population of the North was vastly increased, and the agricultural products of the country increase three times as fast as the population. Leaving out rice, cotton, sugar, and tobacco as Southern productions, the value of the principal agricultural staples of the country was in 1860 \$1,336,644,498,† and in 1866 \$2,224,878,177,‡ so that with an increase of \$888,233,679, or 67 per cent., in the agricultural products from 1860 to 1866, there was a falling off in the exports of \$56,000,000, or 14 per cent.

This increase of production took place in the upper Mississippi valley. Still the States in the lower Mississippi valley, including those that border on the Atlantic or the Gulf, with a population of 7,560,000, exported to the extent of \$328,406,757. Of the agricultural produce of cotton and rice alone, they sent abroad \$158,000,000, or \$21 to the inhabitant—supposing all the cotton and rice to come from the Southern States that border on the Gulf or the Atlantic; while, if we suppose that all the bread and bread-stuffs that are exported come exclusively from the inland States of the Mississippi valley, we shall have with a population in these States of 14,660,000 only \$31,000,000 against \$158,000,000. A most startling fact for the political economists of the country, that these pent up States with their teeming soil should out of their agricultural abundance contribute to the export trade of their country \$2.10 per inhabitant, while their Southern neighbors, with a soil not more productive, should contribute at the rate each person of \$21.

* Commerce and Navigation, 1867, p. 18.

† Census, 1860.

‡ Commissioner of Agriculture.

The striking geographical fact that, with its suggestions, meets us here is, that one group of States front on the sea and have convenient access to the markets of the world, while the others are pent up, cut off from the sea, and so situated that when the farmer there sends one measure of corn to market, he has to send two others along with it to pay its expenses.

It may be urged that those States with the cheap and convenient highways to the sea produce cotton, while those that are cut off from it have corn for their staple. But to make fair comparison, suppose the Southern planter had to pay two bales of cotton to get one to the seaboard. BREAD! why the cry of the Old World is *bread*, *bread*, and only give these pent up States these internal highways to the sea, and the commerce of the country, both foreign and domestic, will flourish as it has never done.

Enable the farmer in the valley of the Ohio to put his grain on board ship in Hampton Roads for 10 cents the bushel, and him of the Mississippi for 15, and Western corn will be the cheapest corn in the food market of England and Western Europe.* The demand there will then be enormous, and commerce will revive.

The surest way to encourage commerce and to increase the national revenues is, to give the West cheap highways to the sea; for, from the lack of them, the whole country is lagging at an enormous distance behind her two competitors in the commercial race. Their population does not exceed hers, yet her domestic exports amount to only one half of those of France, and one-third of those of Great Britain.†

These Virginia routes and not railways to the Rocky Mountains are the keys to unlock the strong box that contains the real bounties which nature has vouchsafed to this land.

Who gets the Benefit of Cheap Transportation?

The nation, commerce, and the world are all enriched by it; but those upon whom it confers most benefits are the producers and consumers whose stuff and merchandise are transported. In this case the farmer has the deepest stake of all in the hedge.

Whether he sells his grain to his factor on the seaboard or to his next-door neighbor, he asks the same. It is the price of produce in

* It is now being carried from this country to England as ballast, at 1d. sterling the bushel.

† Commerce and Navigation of the United States, 1867, p. 35.

the great commercial centres, less the expense of getting it there, that regulates the price at home.

The Virginia line is clearly the route for the farmers of these States, and Hampton Roads their seaport. The grain is but a portion of their produce.

Nor is this all : none of the New England States produce bread-stuffs enough for home consumption. New England grows wheat enough to last her people, it is said, only six weeks, and the wheat crop of New York is all gone at the end of three months.* The opening of these Virginia improvements would keep the people there bountifully supplied at all times ; it would benefit consumer as much as producer, and bring Boston, practically for commerce, 100 miles nearer than she now is by Sound and Lake and Erie Canal, to the great centres of trade and traffic in the West, and 664 miles nearer to Montgomery, the heart of the cotton region, than she now is via Alabama River, Gulf and sea, or by any other water route.

Western Produce has to pay tolls both ways for passing through the New York Canals once.

These States alone, which are blocked out from the markets of the world, now by the frosts of winter, now by the heavy charges of the railroad for transportation, and now by the dangers and expenses of the Florida Pass, produce two-thirds of all the corn that is grown in the country. Are the producers of this grain aware that for the right of way to the sea via New York canals they are re-required to pay double?—That they have to pay nearly twice as much toll for passing their stuff eastward, through the Erie Canal, as the merchants and manufacturers of the East are required to pay for sending their wares through it to the West ?

The farmers of the West with their bread-stuffs, like the planters of the South with their cotton, have to pay freight both ways though they use only one.

Here is (in confirmation of the statement that they pay for the empty vessels that come and fetch) an extract from the official table of tolls and freight exacted on the Erie Canal from 1830 to 1836 inclusive. The statement is given in averages for four years at a time.

* P. 28, Memorial to Congress on the Improvement of the Wisconsin and Fox Rivers, 1868.

Average Charge on "down" Freight per barrel, 216 lbs. from Buffalo to Albany.					Average Charge on "up" Freight from Albany to Buffalo per 100 lbs.				
From	to	Toll. Cents.	Freight. Cents.	Total. Cents.	From	to	Toll. Cents.	Freight. Cents.	Total. Cents.
1830,	1833	51	44	95	1830,	1833	49	45	94
1834,	1837	35	42	77	1834,	1836	33	57	90
1838,	1841	35	40	75	1838,	1841	33	45	78
1842,	1845	35	27	62	1842,	1845	33	26	59
1846,	1849	31	33	64	1846,	1849	24	15	39
1850,	1853	25	29	54	1850,	1853	19	11	30
1854,	1857	25	20	52	1854,	1857	15	10	25
1858,	1861	19	22	38	1858,	1861	6	6	12
1862,	1866	23	27	50	1862,	1866	6	7	13

These figures are trumpet-tongued against the policy of permitting a great national highway from the interior to the sea to become a monopoly either in the hands of a State or in the power of individuals.

The farmer's produce is obliged to come to market within a certain time or rot on his hands ; merchandise is less perishable and more valuable, and there are many routes competing for it. The great State of New York takes advantage of this. She exacts from the farmer for 216 pounds of his stuff (worth only from \$3 to \$8), 23 cents for the right of way through her canal ; while she exacts from the merchant for the same weight of his merchandise, worth perhaps from \$500 to \$1,000, a toll of only 13 cents !!

Putting the statement into another shape : The farmers of the West are required by the State of New York to pay her 20 or 30 times as much toll, on the value of what they send to market through her canals, as she exacts on the dollar's worth from the manufacturers and merchants of the East.

The completion of this water-line to Norfolk (it should be national and untaxed), with a capacity limited only by the water supply of the country through which it is to pass, would enhance the value of all this produce and merchandise while yet in the hands of the producer, at the rate of from \$4 to \$8 the ton ; and this, irrespective of the coffee, tea, sugar, and merchandise, and the products of other countries that would flow back to him through the same channels, and with an equal gain.

That "a penny saved is a penny gained," no one understands better than the farmer, and no one appreciates better than he the

advantages of lessening the expenses of going to and returning from market.

The Government, by enormous grants of land and princely loans of credit, has encouraged the construction of a railway, now on the verge of completion, from the Mississippi valley to the Pacific Ocean. If all the articles of domestic export which the United States now send to countries bordering on the Pacific were to be sent by that road, the total value of them would be only about \$17,000,000. The value of Western products annually passing through the New York canals is upwards of \$279,000,000. Last year, the through freights between the Atlantic and the West, carried by the three great roads, the New York Central, the Erie, and the Pennsylvania, amounted in value to 405,299,339,* and the gross revenues of each of the three roads to nearly as much as those products which now go to foreign markets on the shores of the Pacific, are worth. Last year, the gross receipts of the Pennsylvania Central were but little short of \$17,500,000 ; those of the New York Central, \$14,000,000 ; those of the Erie, and of the Baltimore and Ohio were each, nearly as much.

To encourage this road to the Pacific, and leave the heart of the country shut out from the sea, and cut off from the commercial highways of the world, looks as though the inland States of the Mississippi valley were slighted off when that work was inaugurated.

The geographical position of Virginia, and the magnitude of the interests involved, are such as to take away from these two routes through our State the character of mere State works, and invest them with the importance and dignity of great national highways and commercial thoroughfares ; for in their construction the people of no less than twenty States are as deeply concerned as are our own sturdy yeomen.

Annual Closing of Navigation by the Lakes, and by the Virginia Water Line.

In the twelve years from 1852 to 1863, the Illinois and Michigan Canal froze annually on the 29th of November, and opened on the 26th March—average frost period 118 days ; the earliest freezing during the interval being the 21st October, and the latest opening the 1st of May.

* Committee on Roads and Canals, House of Representatives.

How is it with the Virginia route? On the average for twenty years, the James River Canal was closed annually by ice only fifteen days. During this interval, there were ten years in which it was not closed at all.* The longest period in any one year was 56 days. The Erie Canal is closed regularly for five months. In 1867-8, it was closed unexpectedly early. A vast amount of produce was then caught in it, and the loss was heavy, so that now, as I am informed by one of the large produce houses in New York, the New York "bankers and receiving merchants were so badly caught with large amounts advanced last year and frozen in, that they have resolved to make no advances on shipments leaving Buffalo after the 5th of November; some after the 1st."

To leave Buffalo by the 1st November, the Western farmer must have his grain in Chicago not later than 20th of October. So here is another drawback to that route, almost as bad as the frost.

The water-line through Virginia will be subject to no such drawbacks, while it offers to the Western farmer other great climatic advantages in the simple fact that rivers and canals are sheltered, and navigation by them is free from the storms and quicksands that vex it by sea and lake; therefore, insurance as well as freights, will rule low by the Virginia route.

The Effect upon Lake Transportation of Equinoctial Gales and Winter Storms.

When the lakes are open to navigation, there are, at certain seasons of the year, obstacles interposed by the weather to cheap transportation there, which cannot be removed, and on account of which the people who send their grain, breadstuffs, provisions and produce via Chicago to the East, pay an extra charge of 60 cents on every barrel of flour, and 12 cents on every bushel of grain, that is sent forward after the middle of September, and until the opening of navigation in the spring.

After the middle of September, and annually about the time of the equinoctial storms, the navigation of the lakes becomes boisterous, and so remains until late in November, when the frost-king sets his seal upon them and closes them up, generally till April, and sometimes till May.

The statistics of the Lake Boards of Trade show that, with the

* Lorraine—Engineer, James River Canal.

commencement of boisterous navigation, there is a rise in freight, both by lake and rail, on all produce going forward from Chicago to Buffalo, New York and Boston ; that this equinoctial rise is from 50 to 90 per cent. upon all grain, breadstuffs, and provisions seeking transportation at that season ; and that these high rates last from the autumnal equinox until the opening of navigation in the spring.

According to the tariff of railroad freights published by the Chicago Board of Trade, the freight to New York was, on flour, in—

	1866.	1867.
April and May.....	\$1.10 a \$1.40 per bbl.	\$1.00 a \$1.10
October and February.....	1.60 a 2.10	1.70
Fourth-class articles, April and May.....	.55 a .70	.50 a .55
October to February.....	.70 a 1.05	.85

PARTLY BY LAKE AND PARTLY BY RAIL—*Flour.*

	1866.	1867.
May.....	.75 a .80 per bbl.	.65 a .70
Middle of September to November.....	\$1.10 a \$1.90	\$1.30 a \$1.35

Provisions per 100 pounds.

	1866.	1867.
May.....	.40 a .45	.32½ a .38
Middle of September to November.....	.75 a .95	.62½ a .67½

Thus it appears that in fall, winter, and early spring—the very time the crops are coming forward, and when the farmers stand most in need of cheap transportation—then, that is the time when the lake route is of the least value. At this season—whether they use lake or rail, or whether the lakes be blocked with ice or vexed by storms, they have to pay from 50 cents to \$1 more on every barrel of flour, and from \$3 to \$3.50 more on every 1,000 pounds of provisions, that they send to the seaboard, than they do in midsummer, when their water-line is clear.

During the two and a-half months of autumnal storms on the lakes, those farmers have also to pay more, by 50 per cent., exclusive of insurance, than they do when the lakes are unvexed. This annual period of high freight commences in September and ends in April.

In autumn, the bulk of the crop is gathered ; then, and in winter, is the time for sending it to market. But this is the time of all others when wind and weather conspire to make transportation from the West, by lake and rail, most expensive.

TOLLS WHICH THE FARMERS OF THE WEST HAVE TO PAY FOR THEIR
PRESENT RIGHT OF WAY TO THE ATLANTIC SEABOARD.

The people of Ohio and the North-west have, since the Erie Canal was first opened, as it appears by the official returns to the Legislature of New York,* paid to that State, for the right of way through it to the sea, not less than fifty millions dollars. This does not include freight either by rail or canal, but only *tolls* to the State.

Nor does it include the tolls that they have paid to the same State, for the use of the Oswego and other canals, nor to the English for the use of their Canadian canals, nor to the lake underwriters, nor for losses in the dangerous navigation of the St. Clair flats and of Lake Erie, which losses are set down in the report of General Wilson, U. S. A., at \$1,000,000 annually.†

Formerly, Denmark exacted tolls at the mouth of the Baltic from vessels passing that way. To get rid of these "sound dues," as they were called, the Government of the United States compounded with the King of Denmark, and paid him a large sum to let our vessels pass *toll* free. Cannot the Government do as much for the farmers of the West at home, as it did abroad for the merchants of the East?

Before the State of New York undertook the Erie Canal, she generously offered it with the right of way to Congress. Congress refused it then, and it is now a sybilline leaf. In like manner, Virginia offers the right of way now through her borders, and if it be refused, the Western farmers may, when it is too late, discover that they too will have let escape the golden moment. If not soon undertaken at the public expense, these works have now become obviously too important and inviting much longer to escape the attention of capitalists.

How much the people of Tennessee, Alabama, and other South-western States have been paying on account of the dangers of the Florida Keys and Bahama Banks, which these Virginia routes would have saved them, I have no means of ascertaining. But the losses entailed by wreck and disaster, and the sums paid for insurance on account of the dangers of that Pass, do not, from first to last, fall short of \$100,000,000. Nay, it may be more; for it has already been

* Annual Report on the Tolls, Trade and Tonnage of the Canals of New York, 1867.

† See his Report on the Survey of the Illinois River, 1867. Ex. Doc. No. 16.

made to appear, that notwithstanding the perfection of charts, the erection of light-houses, the knowledge acquired concerning the winds and currents of the sea, etc., insurance on voyages using that Pass still ranges as high as $2\frac{1}{2}$ per cent. upon the value of ship and cargo.

Two and a half per cent. upon the value of all the commerce that has sought a passage that way from New Orleans and Mobile since the purchase of Louisiana, surely amounts to more than \$100,000,000, and the use of these Virginia routes would have saved much, if not all of it. As an evidence of the dangers of this Pass, it may be mentioned that wrecking is the chief business of Key West. There, it is a regular occupation, and there the United States have established a court of admiralty, especially for the adjudication of salvage.

THE DANGERS OF THE FLORIDA PASS.

These are what, in navigation, are called *hidden dangers*. They lurk there in the shape of insidious currents, sunken rocks, reefs and shoals. There is nothing on the surface to mark their existence. The water looks open and the way all clear, but an error in the reckoning of a minute, or even less, is often fatal to the ship and cargo, if not to the crew.

To sailing vessels the calms that prevail there at certain seasons increase the danger, for in them vessels are often silently swept by the currents and stranded, with total loss.

Added to these are the storms and hurricanes. They, alternating with the most vexatious calms, rage from the middle of July till the middle of March. During these eight months the dangers increase and the rates of insurance go up, for the dangers to a vessel are greatly aggravated when she is overtaken by storms in this crooked and narrow passage-way. Scenes, the most awfully grand and sublime that are known at sea, sometimes take place in the hurricanes and tornadoes that prevail here; in them the waters are piled up; the Gulf stream is turned back or forced over reefs into new channels with a violence that no skill can countervail—no ship withstand.

Among the annals of that navigation, nautical records tell of the *Ledbury*,* an English vessel, which was caught in one of these hurricanes. The waters of the Gulf stream were backed up and piled

* See Physical Geography of the Sea.

to an enormous height. The scene of roaring waves and furious currents beggared description. She let go her anchors, thinking she had found smooth water and a place of safety, but when the gale abated and the sea retired she found herself high and dry and her cables and anchors entangled among the tree-tops on Elliot's Key.*

So it appears that both the route by the lakes and the route by the Gulf are impracticable in war ; and in peace are sorely beset both by wind and weather at the very time of the year when the farmers most need them.

To avoid such dangers, cotton is now shipped from Montgomery, 382 miles by rail, to Savannah, and thence by sea to New York, at \$7.50 per bale of 500 lbs., say, \$30 per ton of 2,000 lbs. Mobile shippers avoid these rates and shun this Pass by fetching their cotton from Montgomery by river, transshipping it and forwarding it thence to Cedar Keys by sea. Here it is transhipped again and sent 160 miles by rail to Fernandina, to undergo another transshipment, and be forwarded thence to New York by steamer, all for \$6 per bale.

But it costs one per cent., say \$1.25 a bale additional, to insure by this route, making a total charge of \$28 per ton by weight for this light and bulky article.

Notwithstanding all these transshipments, forwarders find it cheaper and better to send by this route than to encounter the dangers of the Florida Pass and the high risks that way.†

This Coosa route, completed through Virginia, would enable the Montgomery shipper to send his cotton by the Coosa, Tennessee and Virginia line with a saving of over 500 miles in distance.

CHEAPER ROUTES REQUIRED.

Cheaper and better routes between the Mississippi valley and the Atlantic seaboard than any that are now opened by rail or water is a crying necessity. The merchants of the East are calling for them, and the people of the West demand them. All insist upon canals, for the fact is patent that railway transportation, even though it

* Maury's Sailing Directions.

† By a New York freight bill of October last, the freights thence to Liverpool are quoted on cotton as at from $\frac{3}{4}$ to 1 cent, on flour 60 cents, wheat 14 cents, heavy goods \$6.25 @ \$8.75. By sailing vessels the charges were about one-sixth less. But by steamers the average freight on breadstuffs is about \$5 the ton.

could be reduced to one-half its present rates, could never satisfy the commercial demands of the West. Its chief industry is essentially agricultural. Agricultural products are raw and bulky, and no mode of conveyance but water can profitably fetch them to the Atlantic seaboard.

Wherefore, better and larger canals to and from the Great Lakes are insisted upon. The people in the Upper Mississippi valley are calling for canals leading into the Western lakes; the people of the Atlantic seaboard for canals leading from the Eastern lakes. Some say, enlarge the Erie Canal, and adapt it to boats of 600 tons; others say, let us dig a ship canal around the Falls of Niagara, and enlarge the Canadian canals so as to pass larger ships between the lakes and the Gulf of St. Lawrence. At any rate, they say, give us a ship canal adequate to pass vessels of a thousand tons burden between the Great Lakes and the Atlantic Ocean.*

But the Great Lakes are closed at the very season when the farmers of the West most need transportation. Moreover, they lie beyond our own borders, and, in war, would be impassable.

The only canal that can answer the purposes of the call, must lie *wholly within* our own borders.—The only channel it can take is such as the physical geography of the country will allow.—The only channel that it should take is such that winter climates will not seriously obstruct. With one terminus in the heart of the Mississippi valley and the other midway the Atlantic sea-coast, it should afford, between the best harbor on that coast and the eastern terminus of the Pacific Railway, the cheapest line in peace and the safest in war that can be had. It should be central in situation, so as to afford the greatest amount of convenience to the greatest number of States, to the nation and people. Such are the requirements.

The physical geography and climates of Virginia admit of a route which, better than all others, satisfies these requirements and fulfils these conditions.

EXISTING AND PROPOSED ROUTES COMPARED.

The routes, both by lake and Gulf, lie beyond our own borders. They connect the granary of the country with its capital, the sources of supply with its arsenals and the commercial marts of the Atlantic Ocean; and what great nation was ever known to allow its chief

* Commercial Convention of Boston.

highway of commerce between its granaries and its capitals and between its citadels and its magazines, to pass beyond its own borders, to depend for safety upon the forbearance of foreign powers, when by the expenditure of a sum quite within its means, a shorter, better, cheaper and perfectly safe way may be opened entirely within its own borders?

These domestic routes lie along the diameter, and the trans-territorial routes, along the circumference of a circle, *e. g.* :—From St. Louis, via lakes to New York, the distance is 1,932 miles. Via Gulf, 3,223 miles. Via Virginia water-line to Norfolk, 1,553 miles. From Montgomery, Ala., to New York via Gulf, 2,062 miles. From Montgomery, Ala., via Coosa Canal to Norfolk, the distance is 1,035 miles.

CANADIAN VIEWS.

Our neighbors in Canada, perceiving how inadequate for the West are the New York routes by rail, lake and canal, to the sea, have, at great labor and expense, constructed ship canals around the difficult passes between the lakes and the Atlantic, with the view of diverting the Western trade from Sandy Hook, and bringing it out to sea through the St. Lawrence River and Gulf. These canals admit a draft, some of nine and some of ten feet. But they do not pay; they do not get the trade—and engineers are now preparing estimates for extending and enlarging them so as to pass ships drawing 15 feet.

To deepen these canals and gain this trade is, say the Canadians, "the policy for us to pursue—if we fail to follow it, we neglect every advantage, geographical and commercial, which we possess."*

* * * * *

So that here are a foreign people proposing to go to the expense of canals *fifteen feet* deep to get this trade merely to pass through their borders, whereas with a little slack water, with canals 6 or 7 feet deep and a short link of iron, it is all our own.

Mr. Kingsford, their engineer, depicts in vivid colors the value and importance of our Western trade, and a few extracts from his "Canadian Canals" are here introduced, partly for the purpose of showing the absolute necessity that there is for other and cheaper and better outlets from the West, than present routes afford, and partly for the purpose of disabusing the mind of the Western people,

* W. Kingsford, C. E.

and explaining how, from insuperable obstacles placed by nature in the way, man never can convert the St. Lawrence into such a highway to the sea as their section of the country requires.

"The commerce of the North-west," he truly says, "is not any fanciful speculation, nor is its magnitude in any way questionable. It is a reality, as inquiry will establish. It has *outgrown the Erie Canal*, and the complaint of the West is that the quantity carried is so immense, that carriers can command their own terms. The condition of the producers of the West has been described without exaggeration, as that of men shut out from the markets of the world, oppressed by the excessive production of their own toil, which remains wasting and worthless upon their hands, depriving labor of half its reward, discouraging industry, and paralyzing enterprise." * * *

"In many localities the produce is even without value, for it is without a market. It is estimated that five hundred million bushels of Indian corn or maize are raised in the North-west; but not five per cent. of this amount finds its way to the seaboard, owing to the expense of getting it there; and that out of the *sixty cents* paid in New England for a bushel of corn, only *nine cents* goes to the producer; the remainder being expended in freights and commission. It is this sense of inferiority of position which has hitherto led to great discontent in the West." * * * *

"This surplusage of grain accounts for the extended pork trade. The hog is, indeed, regarded as corn in a concentrated (but expensive) form." * * * *

"The State of Illinois has officially represented the condition of the Western States with great force." * * * *

"What it asks is a direct trade between the North-western States and Liverpool, on the plea 'that the increasing volume of business cannot be maintained without recourse to the natural outlet of the lakes.' If this opportunity be vouchsafed, *and the requisite facilities be given, the surplus produce will be increased with a rapidity even beyond that of the past century.* It is estimated that from the State of Illinois alone, there has been shipped annually, for the last ten years, a surplus of food sufficient to feed ten millions of people, and at the same time, there has been a positive waste from the inability to bring the crops profitably to market."*

Here, then, is the State of Illinois speaking in behalf of the West, and advocating the improvement of the navigation of Niagara and

* Kingsford.

the St. Lawrence River with ship canals, at an immense cost, for the sake of six months' difficult and dangerous navigation trade with Liverpool.

PHYSICAL OBJECTIONS TO THE ST. LAWRENCE ROUTE AS THE NATIONAL HIGHWAY FROM THE WEST TO THE ATLANTIC.

This route is not within the limits of the United States, and is, therefore, not within their control. Moreover, and as for trade with Liverpool, were there a strait between the Falls of Niagara and the Gulf of St. Lawrence, as wide, as deep, and as free as the Straits of Gibraltar, the frosts of winter, the icebergs, and the fogs of summer, would make the Gulf of St. Lawrence the most inconvenient place for distributing by sea the produce of the West that could well be selected. It would be available, at best, for only a little more than one-half of the year. For all the Trans-Mississippi States, and for the greater part of the other Valley States, the Virginia water-line would be a better outlet; for the distance by it and the sea is not only less, but the terminus of the line is more central, and the route is available for $11\frac{1}{2}$ months annually, instead of for only 180 days.*

Instead of being midway the coast, as the Chesapeake Bay is, it is beyond our own borders; its shores are most inhospitable; they are at the extreme verge of coast navigation. An outlet through the Gulf of St. Lawrence would be of no avail to Western commerce in time of war.

But the physical difficulties in the way of the St. Lawrence route to Liverpool do not end with the frost or the winter. The advocates of this route point to the Straits of Belle Isle, and tell how many hundred miles the voyage through it from Chicago to England would be shortened.

But the way to and fro by these straits, between the opposite shores of the Atlantic, leads not only through storms in winter, but through fogs and calms, and on a sea beset with icebergs at other seasons.

The North Atlantic Ocean is the most tempestuous sea in the world. Cape Horn is nothing to it. The approaches to the mouth of the St. Lawrence lie through the most stormy part of this *tempestuous* ocean. When not vexed by gales in winter, this part of it

* Canadian Engineers.

especially, is in summer beset by calms, fogs and ice—flow and drift—and by icebergs.

This route is, therefore, obstructed by the physical geography of the sea, as well as of the land, and in this fact lies the secret of the failure of the Canadian canals to get the trade of the West, notwithstanding their great depth and capacity. The people there, want, and must have a route to the sea that is never closed a single month by the weather, much less one that is tight-frozen regularly for six months every year, and rendered almost impassable at other times by the dangers of the sea.

Storms, fogs, and drifting ice present difficulties that are insuperable. To this route, as the commercial highway for the West, they are fatal ; so much so, that were the Canadian canals enlarged to the size of the Caledonian, their completion would, like the discovery of the North-west passage, be followed by another discovery, viz.: that practically such a channel would be of but little use to Western commerce.

The climates of Virginia and the offings of the Chesapeake are strikingly in contrast with those of Canada and the St. Lawrence, and are as inviting as the merchant and mariner would have them.

There is also another advantage in the outlet through Virginia and the Chesapeake, which the war has in the most striking manner shown it to possess: the average freights, coastwise from New York, in consequence of the fear even of one or two Confederate cruisers, in 1864, was 250 per cent. higher than they were in 1861, when there were no Alabamas afloat.

Now, let the harbors of the Chesapeake be made the entrepot for this Western produce: it might in war be distributed thence coastwise by inland water-lines, leading north and south through the sounds, rivers and canals, which stretch along the seaboard, and thence inland for a navigable river distance of 6,600* miles, in the aggregate, unaffected by war rates, exempt from sea risks, and no more liable to interruption at one time than another.

VALUE OF CERTAIN STAPLE CROPS.

There are (pages 53-60 Report, 1866, Agricultural Department United States) some statistics which put the necessity for these routes in a stronger light than I have ventured to do. These sta-

* United States Census.

tistics are arranged in tables to show the amount in bushels and cwt., of certain principal crops of the several States named, the yield per acre, the total average, the average price in each State, and the value of each crop for 1866.

By them it appears that in 1866 the average price of corn in the six great corn-growing States of the West, viz.: Kentucky, Ohio, Illinois, Indiana, Iowa and Missouri, was 48 cents the bushel, and the average price in the State of New York and the six New England States was \$1.30.

These figures of the Agricultural Bureau in Washington bring out, if we may rely upon them, the startling fact to the Western farmer, that in sending corn to the sea by present routes, he is required to give to New York for tolls, and to middlemen for freights, profits and commissions, 82 bushels out of every 100 that go forward.

Statistics are cumulative with proof as to the inefficiency of present routes to fetch and carry between the inland States and the sea. Those contained in the "Annual Report of the Bureau Statistics on Commerce and Navigation of the United States for the year ending 30th June, 1867," seem to be conclusive, *e. g.*:

"Exports of domestic products for the year ending 30th June, 1867.

"Total exports, rice, cotton, tobacco, naval stores, spirits of turpentine, &c., from the Southern States—population 9,568,709—\$328,506,737. Ditto, all the other States—population 24,937,173—\$143,201,243," from all the States, including both Northern and Southern, inland and seaboard, \$471,707,980.

In these two aggregates are included \$50,000,000 on account of breadstuffs and "provisions, including fish and vegetables."*

Giving two-thirds of this \$50,000,000 to the inland States alone, they would then export only \$2.33 to the inhabitant; while the Southern States export upwards of \$34 to the inhabitant.

Among the causes which go to make up these two rates of \$2.33 and \$34, what one can have a greater influence than the simple geographical fact that one set of States border on the sea, and have free access to it, the others are inland, and have to pay heavily to get to it?

In accounting for the great difference in the values contributed for exportation, I find among the agencies concerned none more potential than the lack of cheap, convenient, and free highways from the West to the sea.

* Table XXVI. Bureau of Statistics, 1867.

These are only *some* of the commercial, economical, and political advantages which Virginia, by virtue of her geographical position and her hydrographical features, holds out to the people of the West and the Government, as inducements for the early completion of these national highways.

AS AN INVESTMENT.

The remunerative character of these two grand lines, both of rail and water, is, by existing works, placed beyond question. The internal improvements which connect the West with the Atlantic seaboard, show clearly enough what a broad margin these Virginia works offer to private enterprise. It is so broad and clear that the public would not be justified in parting with it.

First and foremost among existing improvements comes the Erie Canal. As large as it is, it has proved entirely too small. Nevertheless, it has paid for itself, has been enlarged, and has enriched the State of New York. Her merchants are now urging that it shall be again enlarged, and given the dimensions of a ship canal. It is supported by the produce of the Mississippi valley; yet its western terminus does not lie within that valley, and, indeed, is so far from its great centres of production and export, that the freight which produce has to pay to reach it would, by the Virginia water-line, place it in the Chesapeake Bay.

Nor does the western terminus either of the New York Central, or of the Erie Railway, lie within the Mississippi valley. They are both upon the lakes. The gross earnings of the latter road in 1866-1867 were \$14,317,213.14, and of the former, \$13,979,514, and last year (1868) the Central surprised its stockholders with a dividend of 80 per cent.

The first of these great East and West lines that has its terminus within the borders of the Mississippi valley, is the Pennsylvania Railroad. Since 1860, its annual dividends have averaged 13 per cent.,* and its gross earnings last year were \$17,233,497.31—a sum, be it remembered, greater than the entire estimated cost of the Chesapeake and Ohio Railway, from Richmond to the Ohio River.

The second road runs from that river to the Chesapeake Bay. It is the Baltimore and Ohio Railway. It has better western termini; but not such gentle curves, nor easy grades, as the Pennsylvania

* President of the Company.

road. Its stock is high, and earnings supposed to be large, for the Company have ceased to publish them.

The western terminus of each of these roads is, as an inspection of Map III. will make plain, not in the heart of the Mississippi valley, nor within easy reach of any of its great centres of trade, but far away on the eastern verge. Of the commercial centres in that region, Cincinnati is the nearest to it. That part of the Ohio River that lies between the mouth of the Great Kanawha and the termini of these roads, is frequently frozen in winter, and in summer the water there is so low, and navigation so often interrupted by the vicissitudes of the seasons, that neither of these roads places its chief reliance upon the river to fetch and carry for it. Their main reliance for that is upon the railways of the West.

The distance to Cincinnati from the terminus of the Pennsylvania road, at Pittsburg, is 314 miles ; from the Baltimore and Ohio, at Wheeling, 257 ; at Parkersburg, 205 ; Chesapeake and Ohio, at Catletsburg, 175 ; and to this last, also, the distance is only 214 miles by the river, which is open to navigation as far as Catletsburg generally for 10, sometimes for 12 months in the year. The great difference in the navigability of the Ohio above and below the terminus of the Virginia road, is owing to the affluents which enter between the termini of the two other roads and this. Between Wheeling and Catletsburg, at the mouth of the Big Sandy, the Ohio receives the drainage from a series of river basins that embrace an area of 50,000 square miles. With its volume thus increased, the Ohio brings this Virginia road in connection with 16,000 miles of navigable water-courses in the Mississippi valley. Moreover, it will take Louisville, Kentucky, from the outside of the commercial circle, and place her within its mystic ring.

This Virginia improvement will make that city, with Cincinnati, the two eastern doors to the Mississippi valley. These cities look toward the Atlantic. Commercially, their front doors are toward the sea. These improvements will open them, and make them the great thoroughfares through which the commerce between that valley and the Atlantic sea-ports of the country is to pass. By rail, Louisville is 1,000 miles from shipping at New York. This pent-up city, by connecting with the Chesapeake and Ohio Railway through a road south of the Ohio, may bring herself within 650 miles, by rail, of the tide-water harbors of the Chesapeake, and by extending her Kentucky and Virginia railway to meet the Virginia and Kentucky road at Cumberland Gap, she may place herself within 700 miles of Hampton Roads. Thence, 293 statute miles is the distance

to Sandy Hook ; so that this route will bring Louisville by rail and sea 7 miles nearer to Sandy Hook than she now is by rail to New York. And with the water-line open, the agricultural produce of the fertile country for which these improvements would make her the inland market, would be delivered in New York at the rate of 10 cents the bushel for grain cheaper than it now can by any existing route.

Length of Western Railways and Navigable Water Courses that these Virginia Routes would connect with the Chesapeake Bay.

The farmers in Ohio and many parts of the West are cut off from the corn markets of New York and the world by the cost of railway transportation. In like manner, those of Missouri, Iowa, Kansas and Nebraska, and all the country above the mouth of the Ohio, situated more than 15 or 20 miles from navigable waters, are cut off by way of the Gulf. They are shut up.

The population of the inland States in 1867, thus cut off from the markets of the seaboard, was 14,660,000 souls, and the length of their railways 17,622 miles.*

According to the same authority the aggregate length of all the railways in the whole country is 39,244 miles. The tonnage moved by them last year was 48,488,000,† exclusive of coal, with an average value of \$150 the ton.‡

Using these figures as data, calculation gives 21,728,000 as the number of tons of merchandise moved last year over these Western roads, and \$3,259,000,000 as its value.

Let us inquire how much of this produce enters into the list of domestic exports of the country.

The data for answering this inquiry accurately are wanting ; but, not to err in favor of the cause we plead, let it be assumed that all the grain, flour, breadstuffs and provisions that were sent abroad last year came exclusively from these pent-up§ States ; that none of the States of the Atlantic seaboard, nor of the Gulf, contributed to these exports a bushel of corn, a barrel of flour, or a pound of meat.

* Henry V. Poor.

† Manual of the Railroads of the United States, 1868-'69, p. 28.

‡ Poor's estimate. I think it is too high, but as it is Northern and quasi-official, it is used for the following estimates.

§ "Pent-up"—the fourteen inland States north of Alabama, Mississippi and Louisiana, which are shut out from the sea.

Upon these assumptions, the total quantity that found its way abroad, out of three thousand and odd millions, was \$50,000,000*—not quite two per cent.

What would the farmers of Pennsylvania, New York, and the New England States think, and what would be their condition, if they could get to the sea with only two per cent. of their domestic products?

With this great source of commercial wealth and national prosperity thus cut off from the sea, with its present avenues closed entirely for five months every year, and crowded to their utmost capacity during the other seven, it is no matter of surprise that while France and England have during the last seven years increased their domestic exports—the former at the rate of \$32,000,000, the latter at the rate of \$35,000,000 annually—the United States have increased hers—simply *nil*.

For, besides affording an outlet to the Atlantic of the 19,500 miles of railway that these two lines together would connect with the Chesapeake Bay, there are 16,500† miles there of navigable water-courses also.

To connect these 36,000 miles of rail and river transportation with the sea, and give them an outlet to the ocean through the finest harbors and best ports in all the land, is one of the legitimate results which the Physical Survey of Virginia is, when properly treated, calculated to draw after it.

All the produce and merchandise that is annually floated down these rivers or transported over these rails, adds but little to the commercial prosperity of this country. But a small portion of it can stand the present heavy rates thence to the Atlantic seaboard; the rest has either to remain upon the markets of the interior as a drug, or if it ventures to try those abroad, it has, for the want of convenient and proper highways, to go beyond our own borders and seek an outlet through the lakes; or it has to launch out upon the Gulf, and risk the dangers of the sea, and stand the hazards of the Florida Pass and Bahama Banks with all their dangers.

At this moment, in a time of profound peace, Southern planters have to pay a marine insurance of \$2‡ and upwards on every bale of cotton that goes abroad through the Straits of Florida. Western

* Annual Report of Bureau of Statistics, Commerce and Navigation of the United States, 1867, page 37. In this sum are the following items: "Provisions, including fish, potatoes and other vegetables, \$19,000,000."

† Col. Long, U. S. A.

‡ "Rates of marine insurance, like freights, vary according to season of the year,

farmers pay like rates on their breadstuffs and provisions ; and in war, these rates will be more than doubled.

The Early Completion of the Virginia Routes a Public Necessity.

That the early completion, both of the water-line and the Coosa route, with their supplemental double track railways, is urgently required is palpable to farmers and factors, and indeed to all that can be brought to study the subject, or who are guided in their judgment by the statistics of the West as expounded by the statistician of the nation, the Agricultural Bureau of the Government, and by others of no less authority. From them it appears that the chief agricultural staples of these North-western States in 1867, amounted to 1,007,837,779 bushels of grain alone, valued at not less than \$749,319,601, and that through lack of means of transportation, not more than \$20,000,000—not 3 per cent.—found its way to the Atlantic seaboard and *thence to foreign markets*. That notwithstanding the vast immigration into that country during the last seven years, amounting to 1,487,568 souls,* and the increased breadth of land brought into cultivation, the export of our domestic products has been less and less every year for the last seven.

The present population (1869) of the inland States is not far behind that of England. (Inland States 15,120,000 ;† England 18,950,000.)

The amount of produce at present contributed by them to the foreign export trade of the country does not annually exceed \$35,000,000 in value, if it amount to as much, while that of England is somewhere between \$800,000,000 and \$900,000,000 a year.

Upon their 17,622 miles of railroads, these inland States are said to have moved, last year, produce and merchandise to the value of \$3,259,000,000.‡ This is exclusive of what was borne by their 2,382

age and classification of vessel. I get the following from the President of the best Insurance Co. in New Orleans and submit it :

July 15 to March 15, sail to Liverpool,	-	-	2½ per cent.
“ “ “ “ steamer,	-	-	2¼ per cent.
March 15 to July 15, “	-	-	1¾ per cent.
“ “ “ “ sail,	-	-	2 per cent.

Private letter dated New Orleans, 11th November, 1868.

* Delmar.

† Estimated.

‡ Manual of Railroads of the United States, 1868-9.—H. V. POOR.

boats and barges plying up and down their 16,000 miles of navigable water-courses, and bearing hither and thither the produce of one of the largest and most fertile hydrographical basins in the world. Still foreign commerce languishes. It never can be revived until a way to the sea is opened by which the inland traffic may enter the channels of commerce freed from prohibitory tariffs and exorbitant freights.

Besides the considerations suggested by this array of commercial facts and political circumstances in favor of an early opening of these two grand routes, there are others which have been already treated of that make this speedy completion a national necessity.

Have the people of the inland States any just claim upon the Government for a FREE highway to the sea?

The question as to the right of the people of the interior to demand a free highway to the sea—of the West to trade with the East without paying tolls—is an important one. That they have, seems to have been recognized and admitted by the Government when it purchased Louisiana, in order to control the mouth of the Mississippi; and as to a highway between great sections of the country, the Government acknowledged the principle when it offered \$20,000,000 to Mexico for the right of way across the Isthmus of Tehuantepec. Had the right been acquired, the way still remained to be opened, and that too at an enormous cost. It is now in treaty for the right to construct a ship canal across the Isthmus of Darien. This, like Tehuantepec, is intended to be a work for the purposes of commerce between different parts of the country in peace, and not for defence in war.

In proof of the insufficiency of existing routes, we have the fact that Norfolk now, with these lines into her back country not half completed, and burdened with high tariffs, is becoming a cotton port of no small importance; and notwithstanding that her connections with the cotton-growing country are by rail and not by water, by single and not by double track, and therefore much more expensive than they would be if the water-lines connected with the Tennessee river were completed—notwithstanding all these drawbacks, that seaport town is now receiving cotton by rail from Tennessee, Northern Mississippi, Alabama, and Georgia. The cotton delivered in Norfolk from these States and the Carolinas, for the last three years, counts up as follows, viz.: In 1865–66 the fifty-fifth part only of the total cotton crop found its way there for export.

But in 1866-7, one-seventeenth, and in 1867-8, one-thirteenth of the whole was shipped from Norfolk.

These are the figures :

1865-6.....	38,000 bales.
1866-7.....	124,000 bales.
1867-8.....	187,000 bales.

That cotton should come from those parts to Norfolk by rail rather than seek the water route through the Florida Pass, is significant enough as to the dangers and difficulties, the waste of time and money, attendant upon that navigation.

THE PECULIAR CLAIMS WHICH VIRGINIA ABOVE ALL THE STATES NOW
HAS UPON CONGRESS FOR THE CONSTRUCTION OF THESE WORKS
AT THE GENERAL EXPENSE.

In 1780, the Congress of the United States pressed Virginia to surrender the North-western territory, now comprising the States of Ohio, Indiana, Illinois, Michigan and Wisconsin, to the General Government, reminding her how *indispensably necessary such a cession was, to establish the Federal Union on a fixed and permanent basis, and on principles acceptable to all its respective members ; how essential to the public credit and confidence ; to the support of our army ; to the vigor of our councils and the success of our measures ; to our tranquillity and to our reputation abroad ; to our present safety and future prosperity ; to our very existence as a free, sovereign, and independent people.*

Virginia listened to the appeal, and granted the boon on the expressed condition (among others) *that the lands within the territory so ceded, should be considered as a common fund, for the use and benefit of all the States (Virginia included), and should be faithfully and bona fide disposed of for no other use or purpose whatever.**

Let us inquire what has been done with these lands.

The Commissioner of the General Land Office in his Report for 1867, tells us that 189,219,886 acres have been given for roads and canals.

A large portion of this grant consists of the lands ceded by Virginia.

Not one acre out of this magnificent domain has been given for the use of any one of the "original thirteen." One hundred and

* See Congressional Minutes, 6th September, 1780.

eighty-nine millions two hundred and nineteen thousand eight hundred and eighty-six acres of land cover an area as great as that now occupied by all the "old thirteen" put together, leaving out only New Jersey. In addition to this there have been appropriated and set apart by Congress to be applied for schools, colleges, universities, etc.—a large part of which lies also within this grant—a further area of ninety-one millions four hundred and three thousand two hundred and seventy-two acres. Together, these two quantities make an area of 422,848 square miles—more land than would be comprised within the limits of the United Kingdom of Great Britain, added to Denmark, Holland, Belgium, France, Spain and Portugal. And of all this Virginia has yet to receive the first acre for her use. It may have been for her *benefit*, for whatever advances the prosperity of one State may be beneficial for all. But the grant was for the use as well as the *benefit* of all the States: And these untaxed highways to the sea would be eminently for the use and benefit of all the States (Virginia included).

Times have changed. The Congress of the United States is no longer a suppliant at the feet of Virginia, praying her to give of her bounties and preserve "our very existence as a free sovereign and independent people." And she has no voice in the land; but with the eloquence of silence her sons may but point to these facts and these routes, to these lands and statutes, and bid *them* speak for her, and tell what she has done.

AS WORKS OF DEFENCE.

Considered in this light, these new routes assume a magnitude of still more commanding proportions and direct national importance.

In case of a war in which Canada should become the seat, the farmers of the West may *well* ask the question, what would become of them? The lakes would be impassable to vessels of commerce, and their produce, as recent experience has abundantly taught them, could not afford to pay railway freights and monopolies that Eastern combinations would be sure to exact.

The Government is already anxious and the people of the West uneasy upon the subject; for it cannot be too often repeated that in such a war the great chain of lakes would not commercially be of any value to either belligerent.

The war of 1812 was, on the lakes, a contest between the ship

carpenters with their adzes, on the two sides, rather than of arms between the opposing forces. Trees standing in the forest were in the morning cut down and ere night were often made into the ribs of ships. He that should be first in building and launching fleets was sure to be master of the lakes. And it was so.

There were no canals there then ; but now there is a ship canal on that side, none on this ; and in case of war the declaration might be made from the turrets of an iron-clad fleet, admitted upon the lakes through the Canadian canals. In this view the construction of a ship canal from the Mississippi into Lake Michigan becomes a question which, as a work of lake defence, is of great importance and urgent necessity.

Two years ago the Government sent Gen. Wilson to survey the Illinois River with the view to its improvement, and the deepening of the Illinois and Michigan Canal.

After careful survey and examination, he recommends the improvement of the river and the enlarging of the canal to a ship canal, as a national work, and estimates the cost at \$21,339,996.

The General says impressively that he is induced to recommend "improvements of such magnitude after the fullest consideration of the subject, because he believes that nothing else will answer the present and future demands of the national defence and sufficiently provide for the immense internal commerce of the country.

He bases the recommendation chiefly on these grounds, viz.:

"The English are," he says, "already able, by means of a system of internal canals, to pass gunboats of nine feet draught into Lakes Erie and Ontario, and are contemplating a new canal which will enable them to reach Huron without coming in reach of American territory at any point. The canals already finished were constructed avowedly for military as well as commercial purposes, and *in case of war will enable the English to drive our commerce from the lakes, and destroy or lay under contribution nearly every important city on our northern frontier. But, in addition, they can inflict upon us a still more vital injury, when they have gotten possession of the lakes, by severing the main line of our communication with the East for heavy products.* * * * * *

"There are but two ways (he continues) in which we can thoroughly protect our frontier in times of war, and relieve ourselves of a continual menace in times of peace. The Government must either *connect the lakes and the Mississippi River by a canal of sufficient capacity to accommodute gunboats suitable for service on the lakes, or prepare for the annexation or conquest of Canada!* * * *

"These States (Illinois, Iowa, Wisconsin, Minnesota and Missouri) have now reached a stage in their development when cheap and direct communication with the markets of the world has become an absolute commercial necessity, and unless the amplest provision is made by our own Government for such communication, and a policy adopted by Canada which shall give us all the advantages of unrestricted trade upon their rivers and canals, our commerce and agriculture will be crippled, before the expiration of a decade, to such an extent as to demand not only the enlargement of the Illinois and Michigan Canal, the improvement of the Illinois River, and the construction of the Rock River and Green Bay Canal, but the *absolute conquest or annexation of the entire Canadian Confederation!*"

Such in the eyes of the Engineer Bureau and its officers—and they are the experts of the nation—is the importance of a highway from the West to the sea.

Surely the geographical position of Virginia, and the rare advantages of it to the nation and the West, both in peace and in war, as a means of defence, as a source of wealth and a channel of commerce, can never have been fairly considered; for we are told by high authority that the interests in the West which are pressing for new, and larger, and safer outlets eastwardly to the Atlantic, are such that before another decade the absolute conquest of the Canadas, of New Brunswick, Prince Edward's Island, Nova Scotia, Newfoundland and Belle Isle, and the coast of Labrador, will become an absolute matter of commercial and national necessity; for the conquest or "annexation" of Canada spoken of by the military engineers of the Government would, in the military aspect of the question, be of little value without all the other British provinces and possessions named.

The offings of the Gulf of St. Lawrence are curtailed, and the approaches to it overlooked by each one of those places as effectually as is the Gulf of Mexico by Cuba; and precisely the same reasons which have been urged for the acquisition of the "Queen of the Antilles," would apply to these iron-bound and frosty regions.

Thus that route is beset by difficulties, both political and physical, which are well calculated to deter all sober-minded men from the idea of war for its sake.

If we turn our eyes from the North and look to the South, we shall find, from time to time, on the part of the Government, like manifestations of solicitude for the safety of the commerce of the Mississippi valley on its way to the Atlantic Ocean in time of war.

Under the plea of taking the necessary steps for watching and

protecting it, \$200,000,000 have been offered for Cuba, and \$7,000,000 promised for the Island of St. Thomas. Notwithstanding the fact patent to the mind of all who use the sea, that the acquisition of these strongholds would not give that perfect security which the nation requires for Western produce on its way to market in war ; nor would it prevent Western commerce from being harassed and worried by an enemy's lookouts, privateers and cruisers, from the time it cleared the offings of the Balize till it passed the Straits of Bemini ; for until then it is embayed, and is in a *cul de sac*.

In order to satisfy the minds of the farmers in the West on this point, is it necessary to remind them how, a few years ago, a Confederate cruiser came into the Gulf, hunted up and sighted their blockading fleet, enticed one of its vessels off, engaged and sunk it, and then made her escape ?

How many merchantmen (considering that the distance at which vessels can be seen at sea rarely exceeds 12 miles) might she not have captured, had the Mississippi been at that time the chief outlet for the produce of the West, and had the Gulf of Mexico been dotted with merchantmen bearing it off to market ?

It is now as it was 20 years ago, when General Jessup wrote his famous letter to the President of the James River Canal as to the importance of that work as a military necessity.*

"The two naval depots of Great Britain in our front (said he)—Halifax and Bermuda—(and he might have added the two others—Jamaica and the Bahamas), command our Atlantic (and Gulf) coasts precisely as the bastions of a fortress command its curtains : the former may control our commerce with Europe ; the latter, that with the East and West Indies, South America and the Gulf. To counteract the military defences of Halifax, we have already the naval stations of Kittery (Me.), New York, and Boston. To check Bermuda, we have but a *single position on our whole coast*, as before stated, which is Norfolk. It is a *matter of surprise* to the intelligent military reader, that a position possessing so many strategic advantages should have been so long neglected. In regard to that position, *nature* has spoken in language not to be mistaken, and which we cannot disregard without endangering most important interests. That prudent forecast, so characteristic of a practical people, would long since, I am persuaded, have induced us to occupy Norfolk as a position, not only where a large naval force might concentrate, but

* Letter dated Washington City, 3d May, 1850, to Thomas H. Ellis, Esq., President James River and Kanawha Canal.

as a depot of construction, upon a large scale, had the *improvements of the country in its rear* admitted of a prompt collection of force and supplies for its defence. The James River Canal, with other improvements, will afford the means of *absolute security* to that important position under all circumstances."

Moreover, the approaches from the sea to Sandy Hook and to the Chesapeake are greatly in favor of the latter. In war, light-houses would be extinguished, and all light-boats, beacons and buoys removed. The channel way to Sandy Hook is narrow and intricate, so that a vessel flying from a superior force in war, to seek protection under the forts, or shelter in the harbor, would run great risk of stranding. On the other hand, the entrance to the Chesapeake is wide, open, and clear. Ships can run in there by night as well as by day, and in all weathers.

Sandy Hook is hydrographically very easy to blockade; the Chesapeake difficult. The offings of Sandy Hook are sheltered on the north and west, forming a lee under which blockaders may find shelter from all gales coming from either of these two quarters of the horizon.

At Sandy Hook the blockaders would have to watch a ship channel-way only 900 yards wide. The entrance to the Chesapeake is as wide as the distance (9 miles) between the Capes of Virginia. The coast from Hatteras to Henlopen is rigid and inhospitable, offering neither shelter nor refreshment to an enemy in distress. And as for defence, these two national highways connecting the Chesapeake with the Great West would simply make that bay a magazine of inexhaustible supplies, and such as the world never saw.

Hitherto military men have considered the Chesapeake Bay exceedingly difficult, if not incapable, of successful defence, against a maritime power. But, then, it was without any such connections as are now proposed, and without the supplies and resources which these connections will bring.

They will bring into close contact the granary of the country, and its marts of commerce. They pass at the foot of mountains filled with the best iron and coal; over mines of lead and copper; among caves of saltpetre; and through forests of the finest timber. Existing improvements, extending back from the Chesapeake, already pass through forests of yellow pine, and furnish naval stores, rice, hemp, and tobacco in abundance. The dock-yards and magazines for receiving military supplies, materials and munitions, and for fabricating them into engines and implements of war, are already there. Therefore let this magnificent sheet of water be but

connected with the West by means of these two improvements, and furnished with those engines of defence which modern warfare has brought into play :—let the strength and resources of the West be concentrated there ;—and then the navies of the world combined may be defied.

Unless these routes be utilized, vessels laden in time of war with Western produce will have to pass the lookout vessels of foreign naval stations, and run the gauntlet of hostile fleets, cruisers and privateers, for the distance of nearly 2,000 miles by the Gulf route ; and, if they attempt the lake route in time of war with England, an enemy would be there to overlook them all the way from Lake Huron to Buffalo, and completely to block that route against all commerce from the West.

Much has been said about the importance of the Erie and other canals as works of lake defence, when it is obvious that in a war in which Canada is to take part, the lakes as a commercial highway, will be of little value to either of the contending parties, for a single hostile gun on either side can forbid to the other the use of the St. Clair flats as a passway for its trading vessels between lakes Huron and Erie.

Study the map of Europe ; look at the lines of internal improvement there from the centre all round to the sea ; consult the pages of history, and it will be seen what importance the great powers there attach to a good seaport ; and what both people, government, and nations have paid for the right to connect it by means of works of internal improvement with the back country.

The only inland water-lines by which the Mississippi valley can be connected with the ocean, so as to have at all times, and under all circumstances in peace and in war, a convenient and unmolested highway to the Atlantic sea-front, lead through Virginia. The Alleghany Mountains afford no passes for such to the north of us, and, until the country avails itself of these, there is no protection in war for Western commerce, and farmers there must console themselves as best they may, under the humiliating reflection that they are cut off with their produce from commercial intercourse with the great markets of their country, from the metropolis of the nation, and from the highway of nations :—that if they go by lake or Gulf, the way is not their own, but such as others may overlook, and, at pleasure, dispute and endanger, if not forbid. Whereas, their rights through Virginia none can dispute, and the way is wholly their own, and as safe and secure in war as in peace.

In short, considering that the expenses via New Orleans and the

Florida Pass are, in a great measure, prohibitory to North-western breadstuffs, and that the Erie Canal has not the capacity to pass more of Western produce than it is now doing, and that this produce cannot stand the charges of railway transportation from its place of production to New York, Philadelphia, and Baltimore, it is clear that Western farmers can contribute but little more to the exports of the country until a new way to the sea has been opened for them. Until this be granted them, the commerce of that portion of the country cannot expand proportionally with the growth of the West.

Were the inhabitants of such a vast, fertile, and growing region of country ever known to be content on finding themselves thus shut out permanently from the sea?

The people of the inland States may urge, with justice, another claim to these routes, as works for the common defence. As a rule, the provisions hitherto made for the common defence consist chiefly in the erection of fortifications along the sea-coast and of works for the protection of the seaport towns; of the establishment along the Atlantic seaboard of dock-yards, arsenals, and armories; and for the maintenance of the army and navy. The expenditures for all of these purposes are made chiefly along the seaboard and in the Atlantic States. Counting them up from the foundation of the Government till now, they cannot amount, in the aggregate, to less than several thousand millions of dollars.

A large part of this money as well as that for surveying and lighting and improving the harbors of the sea-coast was and is paid by the people of the West. The advantages to the Atlantic States of having all this money expended among them, and the disadvantages to the inland States of having to raise it, have been long felt by the people of the West as an unequal distribution of the burthens of taxation as well as an unfair allotment among the States of the benefits arising from the annual expenditure of large sums of public money.

These feelings, in the breasts of Western men, are not by any means mollified by the reflection that while all this has been going on, under the plea of common defence and general welfare of the *whole* country, they are still left to find their way in war to the market-places of their own country as best they may, through foreign waters, and beyond the jurisdiction of their own Government.

Nor are these Virginia routes of less importance to the Middle and New England States than they are to the inland States of the West. They connect the Atlantic seaboard with the heart of the

Mississippi valley. They afford not only the cheapest highway between the granary of the country and its market-places in peace, but in war they offer inland lines of communication which no enemy can cut. Supplies from the West reaching the Chesapeake Bay through these inland routes, may be dispensed thence through internal water-lines that are never liable to interruption in war.

Western supplies arriving in this, the Mediterranean sea of the United States, may be forwarded thence by inland communication through bay, canal, and sound, and be delivered more cheaply in war at the wharves of Philadelphia and New York, and on the shores of New England, than by existing routes they can be delivered now, in time of profound peace.

These Virginia routes, when opened, will give New England and the North cheaper bread and better markets.

Let us, with these Virginia routes unopened, picture to ourselves a great calamity which is not beyond the circle of possibilities, viz.: a war with England. The great lakes will then be closed as a commercial thoroughfare, and the canals connected with them on either side rendered useless. The demands of the East upon the West for subsistence and supplies will be of vital necessity, and the only available passway from the Mississippi valley to the Atlantic seaboard will be through the Gulf of Mexico. It will be crowded with merchantmen bearing their rich freight to the Eastward. This will attract the enemy's cruisers, and the Gulf will swarm with them.

The cost of the fleet sent down there to protect this commerce, and give convoy to the vessels laden with it, will, irrespective of losses and capture in such a war, be sufficient, and more than sufficient, now, in time of peace, to construct these lines through Virginia. They are works which, in their way, are calculated to provide for the common defence, and promote the general welfare, far more effectually than any yet devised. *They are girders necessary to bind and hold the Union together.*

A LINE OF STEAMERS WITH EUROPE.

Another kindred subject incident as to the geographical position of the State, and one closely connected with its prosperity and the development of its physical resources, is the establishment of direct trade with foreign countries.

The value of the agricultural products exported from the whole country in 1866 was, according to the official report of the Govern-

ment, \$412,284,302.* Nearly all of it was the produce of the section of country which these two lines of improvement would bring in connection with the ports of Virginia. Of these \$412,284,302, \$283,000,000, or 68 per cent., was in "cotton and its manufactures," and \$41,000,000, or 10 per cent., in "breadstuffs." Total, 78 per cent.

These articles are sent forward in the raw and bulky state. To remunerate the producer, they require cheap transportation, such as water can afford; for, let it be remembered, such articles can go 750 miles by river, and 600 by our free canal, as cheaply as they can be carried 100 miles by rail, or 20 by common roads in the West.

This Report has for its object, not only to treat of the geographical position of Virginia in all its bearings at home, but to point out their practical importance to other States, to the nation, and the world at large.

We have considered the physical relations in which the Chesapeake Bay, with its fine creeks, rivers and harbors, stands to the people of the West. It remains now to show how, by means of its geographical position and physical attributes, it extends, with its influences, beyond the sea, touches the interests of European nations and reaches the commerce of the world.

Holland holds, geographically, on the eastern shores of the Atlantic Ocean, the same position with regard to Central Europe that Virginia, on its western shores, does to our back country. As with Virginia, so in Holland:—commercial thoroughfares leading to the sea from the back country geographically tributary to her, instead of taking the shortest route, have gone round about; and instead of passing through Holland, have sought circuitous outlets, either to the north or to the south of her borders.

The ports of Holland, like those of Virginia, are the best harbors along the open sea-front of North-western Europe. Like ours, the Dutch ports are central; and like ours, they are the farthest ports to the north that are never blocked by ice.

The head waters of the Rhine, which enters the sea through Holland, like those of our James with the Mississippi, inosculate closely with the head waters of the Danube, which finds its way into the Black Sea:—in Europe, those two rivers have already been connected through the Ludwig Canal, as we are doing ours through the James River and Kanawha improvement; there they have already established a water line into the back country from the

* Commissioner of Agriculture for the year 1866, page 96.

Zuider See and the ports of Holland,—as we propose to extend ours from the Chesapeake and the ports of Virginia,—for the distance of four or five thousand miles inland.

At the general expense, the Government of Holland is just completing a line of internal improvements, leading by canal, river and rail, from Flushing to Cologne, and spending \$4,000,000 to fit Flushing for trade with America.

There, as here, the people have been looking with longing eyes for the day when the ports of Holland, like those of Virginia, shall become the great entrepôts of trade and commerce between the centre of Europe and the heart of America.

The Rhine is open to steamboat navigation from its mouth to Mannheim, a distance of 390 English miles. Mannheim and Cologne and other landings on the Rhine are the principal points inland, where the American-bound emigrants from Bavaria, Switzerland, Hungary, Bohemia, Austria, Baden, Wurtemberg, Saxony, and the centre of Europe, at present assemble, as points of departure, on their circuitous route to this country via Bremen or Hamburg.

These two are at present the chief ports of embarkation. Were there a line of steamers, suitably equipped and established between Holland and Virginia, these emigrants could, when the Chesapeake and Ohio railway is *finished*, be landed on the banks of the Ohio, or of the Missouri, or of any of the navigable tributaries of the Mississippi, with only 403 miles of railway transportation and with only 176 miles, should the project of making the James River navigable for steamers up to Lynchburg, and the improvement of the Holston up to Saltville be realized.

The route which emigrants now take, imposes upon them the fatigues, hardships, and expenses of 1,000 to 1,500 miles of railway travelling in Europe and America, before they reach their new homes in the far West. By changing the point of embarkation to one of the Dutch ports and taking the Virginia route, they would come down the Rhine all the way by steamboat, to embark in the Dutch-American line for Virginia. Arriving in Hampton Roads, they would have the choice of routes thence, according to destination, and each leading through a climate far less severe in winter than any of the more northern lines can offer, and quite as delightful in summer.

If bound to any part of Ohio, Indiana, Illinois, Missouri, Kansas, Iowa, or Nebraska, or to the States north of them ;—or to Kentucky, Tennessee, Arkansas, Texas, Louisiana, Mississippi, or North Alabama ;—or if aiming for the hill country of the Carolinas, or

Georgia—they would all take the same river steamer, which in eight hours from Hampton Roads would land them in Richmond, the capital of the State, a city of 60,000 inhabitants, beautifully situated at the foot of the falls of the James River, which, in the distance of $3\frac{1}{2}$ miles, have a perpendicular descent of 84 feet.

Here, those that are bound for Ohio and the North-west would take the cars on the Chesapeake and Ohio Railway, which, winding over the mountains in gentle curves, and through the most enchanting scenery, would take them by the famous mineral springs of Virginia; and, after a pleasant ride of twenty hours, land them on the banks of the Ohio River.

Here, taking one of the fine Western high-pressure steamers, which look like floating palaces rather than boats, and going with the current, they would the next day, with their wives and children, be landed, fresh and lithe, in Cincinnati or Louisville; and so on in succession from river town to river town, until they reached St. Paul on the Upper Mississippi, or had ascended the Missouri 3,100 miles from its mouth, and landed among the gold and silver mines of Montana. Or, stopping short of this, they might step from the boat at Kansas City or Omaha, and take the Pacific Railway for the "Gold Diggings" of California.

In passing through Virginia on these routes, they would find the people along the first part of it employed chiefly in farming, fishing, boat-building and seafaring, or in the cultivation of fruits and vegetables, such as the fig, vine, apricot, tomatoes, early vegetables, and melons, with peaches, pears, plums, apples, cherries and damascenes, for the supply of the markets in Baltimore, Philadelphia, New York, and other Northern cities.

As he recedes from the Chesapeake Bay, the observant immigrant would find these several industries relieved and diversified by other occupations, such as grazing, stock-raising, wool-growing, mining, and timber-getting. At Richmond there are many manufacturing establishments and work-shops of various kinds. Hard by, are deposits of bituminous coal, and mines of natural coke; further on, he would observe immense deposits of iron, with miners busy at their vocation, and furnaces in full blast.

Beyond the mountains, he would note a marked change in the vegetation, and in the aspects of the country; and among them would be the "sugar-orchards," as the people there call the groves of sugar-maple; all planted by nature, and the most beautiful tree in our primeval forests. If the journey be in February or March,

then whole families would be seen collecting the water and boiling it down into syrup over the fires of the "sugar-camp."*

Also, beyond the mountains, and on the wayside of this route, are oil-wells and the salt-works, with the famous coal-fields, of the great Kanawha. These coal measures are said to be the richest in the whole country, and to be unsurpassed in the variety and excellence of their deposits, especially those of splint and cannel coals.

If the place of destination be anywhere to the South-west, as in the direction of Western Georgia, then the new-comer will take the Danville road at Richmond, which is now in process of completion—being an air-line—to Atlanta, Georgia, where he would be landed the next day after leaving Richmond, and where he would find other roads leading off to the four quarters.

This road passes through Charlotte, North Carolina, where the United States have a mint, and it runs longitudinally along that Piedmont country which, with its Italian-like skies, salubrity of climate, and fertility of soil, enchanted the early settlers, and exhausted their praises. They called it the "Garden of Eden." It is still the *sanitarium* of the people who inhabit the malarious districts in the lowland country of Georgia and the Carolinas.

This route will take the immigrant through a fine grain-growing and stock-raising country, and through the best tobacco region in the land.

It will be difficult for the traveller from Germany, Central, or Northern Europe, to realize the change that he will here find, after a few hours, in climate and production, especially in the ripening of fruits, and the coming on of harvest. After his day and a half or two days' travel in this direction, he will find in March† the table served with strawberries and green peas, gathered from the open fields and the gardens, and the wheat harvest commencing in May or early June.

Those who prefer some middle destination, as Tennessee, Southern Kentucky, North Alabama, Mississippi, Arkansas, or Texas, will "shunt" from the Chesapeake and Ohio Railway, at Charlottesville; or, from the Danville Road at Burkeville, to get on to the Virginia and Tennessee Road at Lynchburg—an inland town, famous for its tobacco factories, enterprise, and wealth.

* The making of maple sugar is an important branch of industry in the United States entirely unknown in Europe; the annual yield being 46,120,083 pounds of sugar, and 1,597,274 gallons of molasses.—*United States Census*, 1860.

† Strawberries appeared in Norfolk this year (1869) 20th March.

This road, before it leaves Virginia, carries its passengers by the salt works and gypsum beds of Abingdon, and through a fine fruit, grain, grape, and stock country ;—rich also in minerals, as lead, copper, iron, zinc, coal, etc.;—and then down that beautiful valley of the Tennessee, already described, where navigation is said, even in the severest winters, never to be interrupted by a “pellicle of ice.”

But if, instead of any of the countries through which these three routes pass, or to which they lead, the immigrant should fancy to establish himself anywhere along the Atlantic seaboard, the means of cheap, quick, and comfortable conveyance are ready at hand.

And there is no region that offers more encouragement to the industrious and sober immigrant, especially the Dutch, than the eastern counties of North Carolina, for they are all tributary to Norfolk.

Here amidst a net work of navigable creeks and rivers, and between the parallels of 34° and 36° north latitude, lie the famous “*pocosins*,” or “swamp lands,” as they are called, of North Carolina. They are in bodies of from 5,000 to 90,000 acres.* They are the property of the Board of Literature of the State, and the proceeds arising from the sale of them are pledged for educational purposes. They may be now purchased at from 75 cents to \$1.25 the acre ; or even by a colony of immigrants on better terms, for the Government offers to those who will undertake to drain them in considerable bodies, one-half for the other.

These lands, like the “swamp lands” of the Mississippi bottoms, are alluvial, exceedingly fertile, but much more easy of reclamation. Well authenticated instances are given by those who are familiar with this part of the country, of fields which have yielded, without rest or manure, annually, for 100 years successively, a crop of maize, each crop averaging from 50 to 60 bushels to the acre. On large portions of these lands the timber is excellent, and will more than pay the cost of drainage.

They are thus described in a recent communication made by the Superintendent of Public Education, and endorsed by the Governor of the State as correct :—

“They are not affected by tide or salt water. Though called *swamp* lands, their sites are generally elevated above the surrounding country, and consequently their drainage is practicable, and

* Gov. of North Carolina.

when drained and thoroughly worked, soil of remarkable fertility will be obtained.

"Of some of these lands the soil is alluvial, of others, peaty ; and underlying large portions of them are immense beds of shell marl. This marl is accessible, easily and cheaply removed, and applied as a fertilizer.

"Some of the swamps are covered with timber, such as pine, juniper, cypress, oak, poplar, ash, and gum ; others are destitute of a woody growth, not covered, but saturated with water. These savannas are peaty in their composition, and rightly treated can be made repositories of valuable fertilizers.

"Situated within these swamps, and occupying their highest parts, are a number of lakes containing say from 10,000 to 25,000 acres, which can be easily and cheaply drained, and rendered valuable for tillage.

"These lands will produce Indian corn, cotton, rice, all kinds of vegetables, grapes and fruits, especially the grape.

"In this region fruit and vegetables mature much earlier than in the Northern or Western States, and can be placed in the great Eastern markets of the republic weeks before they can be produced in the vicinity of those places.

"Cattle can be raised here easily and numerously.

"As these lands lie convenient to water or railroad transportation, and in the centre of the United States Atlantic coast line, their access to profitable markets can hardly be surpassed.

"The salubrity of the climate in this region is noted.

"It is confidently, and I believe justly, affirmed that the swamps of Eastern North Carolina do not generate the malaria which in the marshy regions further south carries malignant fevers ; and the experience of a large population devoted for over a century to open air pursuits, will confirm the statement that the laborers here, in the woods, in the fields, and on the waters, are generally as healthy as in any part of the country."

The winters are not so rigorous as in higher and drier localities of the same latitude, the climate being tempered by the influence of the Gulf Stream, and the proximity of the ocean ; and the same causes also reduce the heats of summer, and aid in promoting the healthfulness of the climate.

This region is at present to be reached from Norfolk, either coastwise or by canals ; and there is a bill pending before the Legislature of the State, proposing to appropriate \$2,250,000 for the construction of a road through this region from Wilmington to Norfolk.

The waters of Eastern North Carolina, like those of Eastern Virginia, abound in piscatorial wealth. Some of the seines used in the shad and herring fisheries are a mile and a half long (2,700 yards), and 18 feet deep, and more than 200,000 herrings are sometimes caught with them at a single haul.*

But should the immigrant fancy neither these lowlands nor their latitudes, but prefer still more southern climes, then there is already in complete order and equipment the Seaboard and Roanoke Railroad, which, with its connections, will carry him through the celebrated pitch-pine region, which, with its groves of cypress and forests of live oak—the teak of America—skirts the coast all the way from Norfolk via Florida to the borders of Texas. From these forests comes the best ship timber for the United States Navy, with naval stores, masts, spars, and yellow pine for the ship-yards of Europe. This route will lead him also through groves of magnolia, through forests of vines, creepers and parasites, and among plantations of rice and cotton until the third day, when he will find himself in the land of flowers and among the orange groves of Florida. Or, if the new comer fancy to establish himself in that delightful part of the State which is tributary to Fredericksburg or Alexandria on one hand, or to Petersburg on the other, there is a choice among several routes. There is a water route by bay and river from Norfolk both to Alexandria and to Fredericksburg. There is another route to Fredericksburg, viz.: by steamer up the James to Richmond and thence over the Richmond, Fredericksburg and Potomac Railway.

Alexandria is in sight of Washington, and is the gate-way to a fine country on the lower Shenandoah and the upper Potomac. This country stretches along the foot of the Blue Ridge for many miles, or spreads out into fine pastures among the Alleghany Mountains.

The Orange and Alexandria, the Manassas Gap, the Loudoun and Hampshire Railroads, all radiate from this ancient city out into this beautiful country.

Fredericksburg is sixty miles south of Washington, and in a few miles of the gold region of Spottsylvania, Stafford, Culpepper and other counties. It is famed for the salubrity of its situation, its refined society and elegant hospitality.

The Petersburg and Norfolk Railway will land the immigrant in Petersburg, or he may come by steamer to Richmond; a run thence

* 220,000. —Official Report of General Gwynn, 1867.

of 25 miles by the Richmond and Petersburg Railway will land him there. Thence the Petersburg and Weldon Railroad leads into North Carolina, and so on indefinitely to the south-west, with connections branching off to Raleigh, Columbia, Milledgeville—the capitals of Georgia and the Carolinas—all occupying central positions, and each situated in a delightful part of its State.

If, on the other hand, his fancy be for more northern latitudes, he may take a Bay steamer, and in 12 hours from Hampton Roads land in Baltimore; or on a sea steamer for New York, and land there in 24 hours,—distance 279 miles.

Thus sailing from Holland and landing in Virginia, the points of departure and arrival would be at the most central, commanding, and convenient points both in Europe and America.

Distances to Cincinnati and St. Louis via Hamburg and New York, and via the Ports of Holland and Virginia, from various places in Central Europe.

FROM	DISTANCES (IN NAUTICAL MILES) TO CINCINNATI, VIA—	
	HAMBURG AND NEW YORK.	HOLLAND AND VIRGINIA.
Berlin.....	4,650	4,370
Leipsic.....	4,700	4,440
Stuttgart.....	4,860	4,410
Magdeburg.....	4,630	4,280
Frankfort.....	4,760	4,320
Dresden.....	4,760	4,500
Munich.....	4,920	4,450
Vienna.....	5,040	4,670
Manheim.....	4,800	4,350
Cologne.....	4,740	4,210
Strasburg.....	4,880	4,420
Hanover.....	4,590	4,320
Breslau.....	4,890	4,630
Prague.....	4,850	4,590
Basle.....	4,930	4,480
Metz.....	4,870	4,260
Brussels.....	4,820	4,130
Antwerp.....	4,810	4,100

DISTANCES (IN NAUTICAL MILES) TO ST. LOUIS VIA—	HAMBURG AND NEW YORK.	HOLLAND AND VIRGINIA.
Berlin	4,910	4,660
Leipsic	4,960	4,800
Stuttgart	5,120	4,670
Magdeburg	4,900	4,550
Dresden	5,020	4,770
Frankfort	5,020	4,580
Munich	5,180	4,750
Vienna	5,300	4,930
Manheim	5,070	4,610
Cologne	5,000	4,470
Strasburg	5,140	4,690
Hanover	4,860	4,590
Breslau	5,150	4,900
Prague	5,110	4,830
Basle	5,200	4,740
Metz	5,140	4,530
Brussels	5,090	4,390
Antwerp	5,080	4,370

The distance from Hamburg to New York is 3,550 sea miles.

Flushing and Norfolk are taken as the points of departure in Holland and Virginia. The distance between them by sea is 150 miles less than the distance between Hamburg and New York. (The port of Bremen—Bremer-Haven—is 50 miles nearer than Gluckstadt, the port of Hamburg.) Therefore, if we subtract 3,550 from the preceding distances via Hamburg, we shall have the distance inland and on the two continents which emigrants, taking the route via Hamburg and New York, have to travel, and that distance is chiefly by rail. Thus the distance, via Hamburg and New York, from Vienna to St. Louis is 5,300 miles, 1,750 of which are inland, and most of it by rail.

The distance between the same points, via Holland and Virginia, is 370 miles less, with sea or river navigation all the way except the Ludwig Canal, in Europe, and the Chesapeake and Ohio Railway, in America, 428 miles—ultimately to be 403.

Flushing is situated at the *Balize* of the Rhine, and on the deltas of the Scheldt. Flushing is only five hours from England. It is at the other end of the English Channel. Easy of ingress and egress, its offings are as convenient, as safe, and as sure as a navigator could desire.

They are already preparing docks there for the accommodation of the immense direct trade which those well-planned lines are

nearly four to one. We send to Brazil \$5,055,930 and receive from her \$19,132,951 in return. Of this, \$15,386,844* is in coffee alone. This coffee is chiefly consumed in the West and the North-west, and with Norfolk as the place of importation, and these Virginia routes for cheap transportation, Cincinnati, Louisville, St. Louis and Memphis, would become the great centres of its distribution.

Before the war, a line of sailing packets had been established between Richmond and Rio ; and though but a short time in existence, it had already made Richmond one of the chief coffee ports in the country.

With these cheap water lines to the Ohio, the farmers of that section would be brought—through Norfolk—in connection with Brazil and the Amazon, by a cheaper and more direct route than it is possible for them to be by any other seaport.

And if with Brazil and the valley of the Amazon, then with all other countries beyond, as with the valley of the La Plata, with Chili and Peru, California and the Pacific, the Cape of Good Hope, Australia, India, China and Japan ; for our inland States can trade through the Chesapeake with all these countries more directly and advantageously than they can through any other port.

The people of the inland States in the Mississippi valley and of some of the States on the Atlantic seaboard, have an interest as great as that possessed by Virginia in the speedy opening of these thoroughfares, and the time has come for it to be done by them, by her, or by the nation at large, and that right speedily.

The next Report will treat of the Climates and Productions of the State and the encouragement offered by them to immigration.

Respectfully, &c.,

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